

# THE LONDON LITERARY GAZETTE; AND Journal of Belles Lettres, Arts, Sciences, &c.

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## THE BRITISH ASSOCIATION.

*Journal of a Week at Cambridge.*

At the conclusion of a week spent in a very busy and extremely interesting manner at Cambridge, we have felt somewhat at a loss how to communicate our observations to the public. A mere dry detail of the scientific proceedings which have marked that period must have been at once incomplete and common-place; and a description of the hospitalities so largely practised on the occasion, and the display of talent which accompanied them, must have been equally meagre and unsatisfactory. Indeed, any course which an individual can take in relation to this meeting, must fail in conveying an adequate idea of it to those who had not the good fortune to be present; since even those who were, felt the impossibility of attending even to the leading matters which occupied every hour of its continuance, from Monday morning to Saturday night.

Taking as general a view as we can, therefore, we have adopted the form of a Journal, in the hope of exhibiting the principal features of the time; frequently stating the impressions made upon our minds, as well as relating the actual circumstances, and always adhering to plain-dealing and truth, whether there were distinguished success to appreciate, or defects to regret. At the same time, we trust, that in candidly offering our opinions upon things of such varied character, and involving so much curious and learned investigation, we shall not be condemned as presumptuous while we simply endeavour to chronicle this memorable reunion.

At the end of September 1831, the first Meeting of the British Association for the advancement of science, and the principles on which it is founded, took place at York, when above 300 members attended in the theatre of the Museum, and Lord Milton (now Fitzwilliam) was elected president. This meeting was originally proposed by Sir David Brewster, in a letter to Mr. Phillips, one of the secretaries to the Yorkshire Philosophical Society; and the design being warmly espoused by that Society, and its vice-president the Rev. W. Vernon Harcourt, as well as by several eminent persons in Edinburgh and London, the assembly more than realised the expectations of its friends and promoters. Suggested, probably, by the existence of the German Association, a knowledge of which Mr. James W. F. Johnston (so highly distinguished for his attainments in chemistry and its associate sciences) had brought to Scotland, the British Association took at once a more extensive as well as more specific ground. General, local, and sub-committees were elected, and their several duties were assigned to them. The whole machinery was organised, and the ends and objects in view were very clearly indicated; and the sub-committees printed a series of recommendations for inquiring into questions that seemed to demand the earliest attention of their able associates. Thus, a re-

port on the state of physical astronomy was committed to Professor Airy; the theory of tides to Mr. Lubbock; a report of meteorology to Professor Forbes; experiments on the quantity of rain falling on a given place to Mr. Phillips and Mr. W. Gray, jun.; on magnetism, on the dipping-needle, on temperatures, on optical science (Dr. Brewster), on acoustics, on heat, on electricity (Professor Cumming), on mineralogy (Professor Whewell), on chemistry, in various relations, (Dr. Daubeny, Mr. Johnston, Mr. West, Mr. Harcourt), on the state of mathematical science, on geology, on geography, on botany, &c. &c. to these and other members, whose pursuits had long been directed to observation and experiment in the several branches designated in this paper.

The Transactions of the York Meeting occupy from p. 56 to p. 91 of the volume recently published by Mr. Murray; much of its time being necessarily occupied by the arrangements so essential to the future progress and prosperity of the Association.

So planned out and provided, it commenced its sittings for the second year at Oxford, on Monday, the 18th of June, 1832. Dr. Buckland followed Lord Milton in the chair; and a similar succession of meetings, discussions, the reading of reports and other papers, ensued as at York, with this difference, that there being less of routine and preparatory business to transact, more undivided and lengthened space was afforded for the philosophical inquiries. The Transactions, the notices of which have occupied many pages of the *Literary Gazette*, appear in the volume already referred to, and will be found from page 125 to the end, 602. Many of them are of infinite value to science, and lay a grand and sure foundation for the superstructure which has so far been gloriously carried on at the recent Cambridge Meeting.

At the close of the Oxford session, the number of members amounted to six hundred and ninety-five; on Thursday, at Cambridge, six hundred and eighty-nine new members had been added within three days; and other and more recent admissions, including such individuals as the celebrated Dr. Chalmers, Professor Jameson, and Dr. Henry, made a total of about fourteen hundred associates! It may be presumed that many persons will merely be members for the year of their attendance; but we trust that a vast majority will deem themselves to be pledged far beyond this partial adherence, and to the very end. At any rate, the stability and power of the Association is secured on a basis too broad to entertain a doubt or a fear of its ulterior advancement; and the annual accession of the lovers of science will do far more than recruit the ranks that may be thinned by circumstance and death.

Having offered these preliminaries, we begin our Journal.

June 23.—Proceeded from London to Royston; and enjoyed, by the fortuitous accident of coach companionship, a foretaste of the mixed meeting for which we were bound. A York-

shire gentleman, who had travelled much, and possessed much information, occupied one place; a learned and most intelligent Professor from Dublin another; and a Hibernian-Frenchman, a sworn disciple of Mesmerism, a third. On the way, we were unable to take up Mr. Rickman, the architect, to whom Cambridge is indebted for one of its most beautiful and imposing ornaments, the new quadrangle of St. John's, with its well-contrived bridge, the source of standing pun in that excellent college.\* The naïveté of our semi-foreign friend, however, left us no leisure to regret the loss of any other traveller. He was induced to discourse on the effects of magnetising; from which we learnt what were the principles of this science, as believed by its adherents in Paris and parts of Germany. Its powers, it is affirmed, are not applicable *ad rem*, but *ad hominem*; that is to say, it can cure every disease in an individual susceptible of its influences, but has no effect upon any disease in a person not so susceptible. From this we might suppose that its operation was upon the imagination; but no, we were assured that it signified nothing whether the patient were near or distant, and that it was as easy to perform a cure ninety miles off, as in the same chamber. An express instance of this was given;—perhaps, the mathematical style of demonstration in so many cases at Cambridge might teach our Mesmerian to doubt as we did.

June 24.—Reached Cambridge at eleven o'clock; and, through friendly introductions, was soon installed in rooms in the new quadrangle of St. John's aforesaid; where, indeed, so many strangers were provided for by the kindness of Professor Miller, that one corner in particular, inhabited by Faraday, J. Martin, Wyon, Wheatstone, *cum multis aliis*, was duly named, in consonance with the spirit attributed to the air of this place, the Mill, *alias* the haunt of "The Miller and his Men." However, the able professor, in all his chemical amalgamations, certainly never before succeeded in combining so many affinities cordially together.

The early part of this day, and some time preceding, was actively and laboriously devoted by the University men, by whom the arduous task of preparation was undertaken, to providing for the accommodation of their numerous visitors, and to disposing every thing for the opening of the meeting. In both they were eminently successful; and when we notice that about twelve hundred persons arrived in the town, and that all went like clockwork in these respects, we have paid a justly deserved compliment to the parties, who, by

\* Our readers are no doubt aware that, among their friendly competitors, the Johnians, renowned as punsters, are designated *Pigs*; in allusion to which this bridge, which forms a junction between the courts *de* and *clera* Cam, is jocularly called the Isthmus of *Sow-er*. Coleridge, the poet, whom we rejoiced to see at the meeting, in improving health and strength, and undiminished fervour of language and mind, proved his title to a residence in the college, by remarking, that any of its members, who drowned themselves from this locality, must be found guilty of *cut-cide*.

night and day, toiled for their comfort and entertainment.

The first step to be taken by a person not already a member of the Association, was to go to the house of the Philosophical Society, where, in the treasurer's room, on entering his name and address, he received a ticket;\* for which he paid one pound, and was inscribed in the list of members. He next went to the secretary's room, and signed a book prepared for the lithographic press, by which a collection of interesting autographs will be multiplied and preserved. The treasurer's ticket was here exchanged for a general ticket; on which was engraved a print of the Chapel of King's College—a most unmerited distinction, for in the course of the week, and especially on one night, of which we shall have occasion to speak hereafter, it was the sole seat of learning which behaved disgracefully, not only to its Cambridge brethren in literature, but to the unoffending visitors whom chance brought into contact with its brutal and unmannerly bearing.

The neophytes were finally instructed that ladies' tickets for the Senate House meetings would be delivered to them on application; that there would be a daily ordinary at the Hoop Inn; that the Reading-room of the Philosophical Society, with the newspapers and periodicals, would be always open to them; and that tea and coffee would be gratuitously provided at the Senate House every evening at eight o'clock. Thus were they warned for the physical contingencies of the week; and had nothing more to do but to inform themselves of the course to be pursued in the philosophical departments: this the following programme furnished:—

#### "Order of Business.

"Monday, June 24th.—10 A.M. Meeting of the General Committee in the Hall of Trinity Hall, to form the Sections, and for other business.—12 Meetings of the Sections in the Schools.—8 P.M. All Members of the Association are invited to the Senate House: Sectional Meetings resumed.

"Tuesday, June 25th.—10 A.M. Meeting of the General Committee, as before.—11 Meetings of the Sections in the Schools, &c. for receiving and discussing Communications.—1 P.M. General Meeting of the Association in the Senate House.—8 P.M. All Members of the Association are invited to the Senate House, after which the Sectional Meetings will be resumed, or a Lecture delivered.

"Wednesday, June 26th.—10 A.M. Meeting of the General Committee, as before.—11 Meetings of Sections, as before.—1 P.M. General Meeting, as before.—8. All Members invited to the Senate House, as before.

"Thursday, June 27th.—10 A.M. Congregation in the Senate House.—11 Meetings of Sections, as before.—1 P.M. General Meeting, as before.—8. All Members invited to the Senate House, as before.

"Friday, June 28th.—10 A.M. Meeting of the General Committee, as before. The Sections will meet after the Sermon at Great St. Mary's Church.—1 P.M. General Meeting, as before.—3. All Members of the Association invited to a cold collation in the Hall of Trinity College.

"N.B. The General Committee includes all Members of the Association who have communicated any scientific paper to a Philosophical Society, which paper has been printed in its Transactions, or with its concurrence; also all Members sent as deputies from provincial Philosophical Institutions.

#### "Arrangements of the Sections.

"I. Sections of Mathematical and Physico-Mathematical Sciences (Astronomy, Mechanics, Hydrostatics, Hydraulics, Light, Heat, Sound, Meteorology, and Mechanical Arts. Meetings for reading papers, &c. Room A, (Plumian Lecture Room), from 11 to 12.

"II. Section of Chemistry, Electricity, Galvanism, Magnetism, Mineralogy, and Chemical Arts and Manufactures. Meetings for reading papers, &c. Room B, (Arts Schools), from 12 to 1.

"III. Section of Geology and Geography. Meetings for reading papers, &c. Room C, (Divinity Schools), from 11 to 12.

"IV. Section of Natural History, (Botany and Zoology and Vegetable Physiology). Meetings for reading papers, &c. Room D, (Law Schools), from 12 to 1.

\* At another table, if needed, a plan of Cambridge was delivered to him, and he was advised as to lodgings, or obtained any other information he required.

"V. Section of Animal Physiology, Anatomy and Medicine. Meetings for reading papers, &c. Room E, (Caius College Hall), from 11 to 12.

"N.B. All Members of the Association may attend the Meetings at which papers are read. The Committee of each Section meets at 10 every morning."

To those unacquainted with Cambridge, we may observe that the first four sections met in convenient rooms, all within a few yards of each other; and the fifth, at Caius College, was very close at hand. This was so far convenient, as, if we found the subject in one did not interest us, it was easy to step into another, where a discussion more congenial to our studies or taste might be going on: still, the simultaneous proceedings of these bodies produced a sore distraction; and we only lament, that where so much is to be done, and there is so limited a time to do it in, the evil cannot possibly be avoided. We think, however, that the experience of this meeting may enable the managers in future to remedy it in some measure, and also to render the intended proceedings of each day more intelligible and explicit. We would, for example, instead of announcements from the chair, at the general meetings, which were invariably confused, besides interrupting the better business, advise the issue of daily bulletins, the expense of which would be trifling;\* and these, being delivered every morning, would instruct the members where and when they were likely to meet with the matters they sought. Such bulletins might state briefly the nature of the lectures or discussions coming on; and their use in directing members would prevent much of that running to and fro which caused frequent interruption in the proceedings, and lost much of the time of the unwilling interrupters.

On the Monday nothing scientific was done by the sections in the schools; and at half-past four the ordinary at the Hoop was a pretty general rendezvous. About ninety sat down to dinner, including the Marquess of Northampton, Lord Fitzwilliam, Professor Sedgwick, Professor Buckland, and other distinguished characters in almost every branch of abstract and practical science. As many had omitted to enter their names as requested, the provision was insufficient for the party; and the dinner was a bit of a scramble—the wine also being very indifferent and dear; but the philosophers bore both with infinite good humour; and as the following day beat it in circumstance, we shall pass on without farther comment on this.

At eight the first meeting in the senate house—a noble and handsome room, admirably suited to the purpose—was assembled. Several rows of seats on the platform, and others in the side galleries, were assigned to ladies; and Professor Sedgwick addressed the company, to desire no gentleman to occupy these places till every lady was perfectly satisfied. The appearance of the whole was gay and animated. The front rows of the platform accommodated the principal actors on the scene. On the right and left of the president were noblemen, the managing committee, chairmen of sections, secretaries, and those who were to speak or read papers; and the body of the hall was filled by the more promiscuous crowd. On the left, tea and coffee was handed about by attendants belonging to the members of the University, who had liberally subscribed to supply these and other refreshments.

A discussion on Falling Stars and on the Auroræ Boreales, which had been begun in the physical section in the morning, was re-

\* If too much to charge to the general fund, they might be sold for a few pence to individuals.

sumed. The first part of the subject was speedily dropped; but on the latter phenomena Professor Robinson, of Armagh, the Rev. Mr. Scoresby (the junior of that name, who has published on the exploration of the arctic seas, but has turned from navigation to divinity\*), Dr. Dalton, Professor Airy, Professor Christie of Woolwich, Sir J. Herschel, Mr. Davies Gilbert, and Professor Whewell, carried on a rather long and desultory debate—one party holding that the aurora was never elevated more than from three to seven miles above the earth, and the other that it rose to ninety or a hundred miles. This strange discrepancy led, and no wonder, to an earnest recommendation that the phenomena should be more carefully and accurately observed; and assuredly the different descriptions given by the speakers of the particular instances they had seen, led to any thing but rational conclusions. A hundred other accounts might have been produced, and still the argument no whit advanced; so that whether the aurora occurs at five or a hundred miles above the horizon, and whether it is a dumb phenomenon, or accompanied by noise, is not yet determined. *Adhuc sub judice lis est.* Should one fortunately happen when the Association is at Edinburgh in September 1834, an adjournment to the Calton Hill or Arthur's Seat will be a glorious opportunity.

About ten o'clock the meeting separated, to prepare by rest for the ensuing day.

TUESDAY. The sections commenced their sittings at eleven and twelve o'clock, organised as follow:—

I. *Mathematical and General Physics*.—Chairman, Sir D. Brewster; Deputy-chairman, Rev. G. Peacock; Secretary, Professor Forbes. Lord Adair, Professor Airy, Professor Babbage, Mr. F. Baily, Sir T. M. Brisbane, Professor Christie, Mr. Dolland, Lieut. Drummond, Mr. D. Gilbert, Professor W. R. Hamilton, Mr. G. Harvey, Sir John Herschel, Dr. Lardner, Mr. Lubbock, Mr. R. Murphy, Professor Rignaud, Dr. Robinson, Mr. C. Wheatstone, Rev. W. Whewell, &c. &c. as members.

II. *Chemistry, Mineralogy, &c.*—Chairman, Dr. Dalton; Deputy-chairman, Professor Cumming; Secretary, Professor Miller. Mr. Thomas Allan, Professor Daubeny, Mr. Faraday, Mr. Harcourt, Mr. Johnston, Mr. Parnall, Dr. Prout, Professor Ritchie, Mr. Scoresby, Professor Turner, &c. &c. as members.

III. *Chemistry, Mineralogy, &c.*—Chairman, Mr. G. B. Greenough; Deputy-chairman, Rev. Dr. Buckland, Mr. R. J. Murchison; Secretaries, Mr. Wm. Lonsdale, Mr. John Phillips. Dr. Boase, Mr. Joseph Cane, Rev. W. D. Conybeare, Dr. Fitton, Marquis of Northampton, Prof. Sedgwick, Colonel Silvertop, Mr. J. Taylor, Mr. W. C. Trevelyan, &c. &c. as members.

IV. *Natural History*.—Chairman, Rev. W. L. P. Garton; Deputy-Chairman, Rev. L. Jenyns; Secretaries, Mr. C. C. Babington, Mr. D. Don, Mr. Agardh, Mr. Blackwall, Mr. W. J. Burchell, Professor Burnett, Mr. J. Curtis, Professor Henslow, Prof. Lindley, Mr. Sabine, Mr. Selby, &c. &c. as members.

V. *Anatomy, Medicine, &c.*—Chairman, Dr. Haviland; Deputy-Chairman, Dr. Clark; Secretaries, Dr. Bond, Mr. Paget. Sir C. Bell, Prof. Burnett, Mr. Broughton, Mr. Clift, Dr. Marshall Hall, Dr. Macartney, Professor Mayo, Dr. Paris, Dr. Prout, Dr. Roger, Dr. Thackeray, Dr. A. T. Thompson, &c. &c. as members.

In the committees of these sections the chairman or deputy-chairman had to preside and to take charge of the business of the committee in the intervals of the meetings, as well as during the meeting.—The chairman of each was furnished by the committee of papers with a list of the communications, to be laid before the section, so far as they have been announced to the officers of the association.—The secretary of each section or sub-section, on being directed by the chairman, had to make a memorandum of the subject of each communication made to the section.—These memoranda of the secretaries of the sections were ordered to be communicated to the secretaries of the association, for the purpose of being published with the report of the meeting.—And the committees of

\* A Johnian said he had left the cure of whales for the cure of soles.

each section were requested to suggest any subjects on which reports on the recent progress and present state of particular sciences from persons of known scientific eminence were desirable, or any specific inquiries, or observations in different places by societies or individuals, to suggest also the names of persons to be applied to for these purposes, and to communicate their suggestions to the general committee on Saturday.\*

On the doors of the several places of assembling manuscript notices were affixed of what was going on within; and the Cambridge Chronicle added the remarks incorporated in the subjoined :—

Section A. *Mathematics, &c.*—1. Remarks on certain Atmospheric Phenomena observed at Hull in March and April, 1833, by G. H. Fielding, Esq. 2. On Naval Architecture. By J. Owen, Esq.

Section B. *Chemistry, &c.*—An account was read of some experiments relating to isomorphism, undertaken at the request of the Association, by Dr. Turner and Professor Miller. A communication was afterwards made to the Committee by Dr. Daubeny, on the Nature and Quantity of the Gases given off from the surface of the water in certain Thermal Springs.

Section C. *Geology and Geography.*—Mr. Taylor exhibited Sections of the Shale of the deepest Mines, and gave some particulars respecting them.

Section D. *Natural History, &c.*—1. Observations relative to the Structure and Function of Spiders. By Mr. Blackwall. 2. Observations on the Pith of Plants. By Professor Burnett.

Section E. *Anatomy and Medicine.*—1. Observations on the Structure and Functions of the Nervous System. By Dr. Macartney, of Dublin, who detailed a considerable number of highly interesting and important original facts.

It was now that we found how unavailing single exertion must be to attempt to grasp all these inquiries. We were bewildered between the doors of sections A, B, C, and D; and knew not where to choose our place of rest. In A the local atmospheric paper did not greatly attract us; but Mr. Owen's lecture on naval architecture embraced points of the utmost consequence, and, as well as the remarks it elicited, was listened to with much delight by a crowded room. The general impression upon us was, that, as yet, for an enlightened maritime nation whose empire was on the sea, we had made comparatively little progress in philosophical experiments to ascertain all the combined relations requisite for the perfection of this mighty arm of commerce and political power. It is true that one man has suggested improvements in sheathing, another in rudders, a third in cables, a fourth in keels, and so on in many distinct parts; but we are not aware of any master-mind having been directed to the grand mathematical desiderata which would ensure the fastest sailing, the best capacity, and the greatest safety in vessels of every kind. To calculate with precision the qualities of the materials employed, the form of the hull, the shape and size of the sails, the position of the ballast, the mode of disposal to the various action of the winds, &c. &c. so as to approach the desired maximum, has not yet been aimed at;† and all that we have done has been effected by shifting opinions, and the tardy step of experience, usually contented with what is, or at most with few and small alterations. We were glad to hear an enlarged application to this subject recommended.

In B, at noon, Professors Miller and Turner read a paper on Isomorphism, replete with research and striking results.

\* The communications which persons are invited to make to the Sections, are written or verbal announcements of recent discoveries, researches, results of researches, experimental decisions of disputed points, suggestions of important points to be examined, information of the progress of science in foreign countries, and oral remarks on such communications.

† A description was introduced of a kind of light boat employed in canals, which could be impelled at the rate of twelve miles an hour.

In C, after a statement of the business intended, Mr. Taylor read a long paper on the depth of shafts in mines in many parts of the world, and communicated particulars concerning them. Upon this branch of geology, and upon that of mineral veins, &c. we think the Section was engaged nearly during the whole period of meeting. Plans on a large scale, and a small lithographic print,\* were exhibited to illustrate them; but we cannot say that the discussion was productive of much of novelty or utility. We had read most of the facts in common publications; and the data agreed upon did not seem to lead to any satisfactory union of opinion. There is, indeed, too much room for theory to expect this; and it is vain to look for an explanation of the interior of our ball from the scratches we have made on its surface. Much yet remains for the geologist to do; and much benefit may be derived from his investigations. The past history of our planet, buried in the oblivion of long forgotten ages, may be elucidated; questions most interesting to the intelligent being, man, may be solved; and knowledge in arts and sciences conducive to his increased comfort and happiness may be attained.

In D, the observations on spiders, by Mr. Blackwall, was more brief than the curiosity of the subject would have warranted. A treatise on these remarkable insects, like that of Huber on bees, is a great desideratum. The construction of their webs, their sensibility to atmospheric changes, their singular habits in every respect, would make a history of highly popular interest. It would excite wonder to be made familiar with the structure of those meshes in the midst of which several of the species live. To observe the three kinds of silk of which they are spun; the thick and strong for security, the fine for shelter, and the viscous for prey. The latter consists of a series of innumerable globules of a glutinous quality, to which the smaller insects adhere, and which materially help to confine and embarrass the efforts of larger flies. The difference of tenacity in the threads is also remarkable, and adapted in an extraordinary manner to the wants and occasions of the creature: but we can only indicate these points, and repeat our wish to see the whole fully illustrated by a competent observer at an early day.

Professor Burnett made some extremely curious observations on the pith in trees and plants, which he considered to be far less, if at all, necessary to their nourishment than was commonly supposed. On the contrary, he believed that its use was almost entirely confined to the structure of the vegetable world; and that it served as a scaffolding for building, which was knocked away when no longer required. On the pith the fibres of the plant were spread, and as these acquired strength and consistency, it dried up and disappeared. The tube which it had filled became hollow. New shoots were propagated by a like process; and the successive layers of timber were to be referred to the same explanation. On this subject some conversation ensued, and the professor's ingenious hypothesis was questioned by several of the members present. To us it appeared to be very feasible; and we trust he will continue to pay attention to a subject on which he displayed so much acumen and talent.

\* In this were delineated a shaft of 2,764 feet in the mountain of Falkenstein, Tyrol; one of 1,770, the Valenciennes mine, in Mexico, near Guanajuato; one of 2,230, the Sampson mine in the Harz; and several in Cornwall and Devonshire of 720, 1100, 1164, 1350, 1410, and (Wheal Abraham, Cornwall), 1452 feet.

A conversation on ruminating animals escaped our attendance.

In E, the demonstrations, &c. we were informed, afforded much gratification to students and to the learned in medical science.

At one o'clock the first general meeting in the senate assembled, with ladies, &c. as on the evening before, which was counted to be only a sort of trial or rehearsal of the actual machinery and business of the association. On this occasion, and on every other, whether of science or festivity, we are inclined to say, that the distinguished foreigners who attended were not sufficiently separated from the general body, and specially provided for in accommodation or compliment. It is true that the managers were overwhelmed with the variety and extent of arrangements; but one of the foremost in such assemblies ought to be, to take particular care of individuals unaccustomed to our manners, and therefore likely to be worst off where so many are anxious for convenient places. In Cambridge there was less danger of this, from the great capabilities of its regal halls; but still we cannot avoid throwing out the suggestion, and remarking that we should have been better pleased to see these strangers invariably accommodated with distinct seats; and when toasts were proposed, to have heard them welcomed sooner in the day, and not towards the hurried close of the entertainments, after all "ourselves" had been perhaps too largely eulogised.

The proceedings of this meeting are so correctly and amply reported in the *Cambridge Chronicle*, that we are again indebted to that journal. Dr. Buckland in the chair thus addressed the assembly:

"My Lords and Gentlemen of the British Association for the Advancement of Science.—I cannot allow myself to resign the honourable office in which, during the past year, I have by your favour been placed, without offering to the Association my sincere congratulations on the unexampled, though not unexpected success which has attended our exertions. When I last had the honour of addressing you on the eve of our separation at Oxford, I ventured to anticipate that we should re-assemble on this day with increasing numbers and renovated energies, to resume our labours within the walls of the University of Cambridge; the august assembly by which I am now surrounded shews how abundantly my most sanguine expectations have been realised. If I had ever any misgivings at the commencement of our career, as to the probability of inconveniences that might attend the establishment of this Association, they arose from the circumstance that we seemed to be, as it were, pledged to the Philosophical Societies of this country not to interfere with those memoirs and communications, to which, in their respective departments, they might possess a prior claim; the result of two years' experience has dissipated these misgivings, and we may appeal with confidence to our volume of Reports now published to the world, in proof of the fidelity with which our pledge has been redeemed. In this volume we have Reports, by eight highly distinguished men of science, as to the actual state of our knowledge on eight of the most interesting and most important branches of human inquiry. On each and all of these it may truly be asserted, that they are such as no other Society would have ever asked for, or could have admitted into their Transactions. We have the history of the recent progress of our knowledge of the structure of the heavens, and of the earth—of the mineral ingredients of which that earth is internally composed, and of the phenomena of

the atmosphere by which it is surrounded; we have summaries of our information as to most important points in the history of light, heat, and electricity; we have an exposition of the actual state of the science of chemistry—that important science which unfolds to our view the recondite and wonderful machinery, and combination of machineries, by which the stability of the material world is maintained, and its secret changes are carried on; we have, finally, a review of the history of our own species, as far as it can be collected, from a comparison of the philological and physical phenomena presented by the various existing races of mankind. Gentlemen, moments like the present are much too precious to be expended in retrospective observations on the past. My remaining task is short, and would indeed be painful, were it not that in retiring to the ranks from which I have, by your favour, been for a while promoted, I have the high gratification to resign my office to my friend and fellow-labourer in the same department of science—to my colleague and brother professor in a sister University—an University which has ever been the nursing mother of literature and science—an University which has cherished in her bosom a Bacon and a Newton, and which now holds out to us the right hand of fellowship, to receive with fraternal affection, and in splendid hospitality, the assembled members of the British Association for the Advancement of Science.”

“The president, the Rev. Professor Sedgwick, then took the chair amid great applause, and spoke as follows: ‘In addressing the members of the British Association for the Advancement of Science, he thought he had a right to include every person assembled, for he must presume, from his attendance at this, that he was at least attached to science. He would address them in such words as nature would supply—not in any prepared form—but in such language as was dictated by this overwhelming occasion. In the first place, let him speak to their late president, Dr. Buckland. It was not the first time that he (Mr. Sedgwick) had heard from him words of kindness—ever heard with joy, as they were ever united with the remembrance of kindred pursuits—of many circumstances most endeared to the recollection of man. Let him also allude to another circumstance which it became him to mention—he meant the splendid hospitality which last year they had experienced at Oxford; and as the progress of the Association, indeed its very existence, depended on a good beginning, to the means adopted at Oxford was mainly to be attributed the present firm establishment of the British Association, and the splendid meeting they beheld this day. In expressing his own feelings towards the sister University, he felt that he was only expressing the sentiments of every man there assembled—(loud cheers.) With regard to the subjects which might belong to such an introductory address, they were so numerous—so important, that if he had had time he would have written out a short comment for the occasion; but he was prevented from attempting it by two causes. In the first place, by his incompetence to grapple with the various subjects, many of them embracing the profoundest investigations of exact science; and, in the next, by ill health. To Mr. Whewell, without whose assistance he could hardly have taken the chair, he was indebted for having undertaken that task; and he had entered into a review of the particular subjects, which he would presently read to them. It would be impossible for him, if he was a hundred times more valuable than he was, to enter into all the topics which ought to be laid before them. He

could well have wished such illustrious persons as Sir J. Herschel or Professor Airy had taken the chair rather than himself, as, compared with their lofty investigations, his pursuits were a mere grovelling in rude matter of the earth; and as for the higher branches of abstract science, he could only call himself a well-wisher of it. Let him now, and he spoke it in the name of the University of Cambridge, in that name he bade them welcome to all the hospitality they could offer—to all the kind offices that men of kindred pursuits could manifest towards each other. His friend, Dr. Buckland, had alluded to some glorious topics in the history of the University, had mentioned the names of Bacon and Newton, and he should repeat those names with sentiments of shame if their spirit had rested on our academic body in former times, and yet produced no salutary influence on those men who were destined to represent the same body in after-years. If in the history of the University during the last century, he would fix ideally upon that year when a great assembly like the present could meet with most propriety within its walls, his imagination would supply him with no year which could be put in comparison with the present. The president then alluded to the institution, during the past year, of a museum of comparative anatomy—of the selection of the magnificent instruments in the observatory; to the Cambridge Philosophical Society, which had now become a chartered body; and to the magnificent establishment connected with the Pitt press. His friend had talked of doubts as regarded the success of this society—to talk of doubt would now be madness; they could feel no doubt, for when he saw around him so many distinguished philosophers, he felt that every one of those persons had given his pledge to carry on this great machine, and bankruptcy was now out of the question. There was another topic to which he must allude—he meant the great advantage the Society gave the University by inducing distinguished foreigners to visit it. That great barrier, which for a length of time had severed man from man, and prevented them even from understanding each other’s language, had been broken down. He begged to state to those distinguished foreigners who were then present, that if, from the great variety of circumstances pressing upon the minds of the members of this University, they were unable to pay them personal attention, it arose not from any feeling approaching to neglect, but from the circumstances to which he had alluded, and which they must have noticed; in the name of the Society and of the University, and as the organ of the Association, he bid them welcome. His friend Dr. Buckland had alluded to the peculiar circumstances under which they met together, not now struggling into life, but with the stature of manhood—with the honours of paternity already blessed with a lasting progeny. The president, here following up this image, went on to state, that he hoped the volume of Reports published by the Society would be the commencement of a long and illustrious offspring, and not only have many lineal descendants, but many collateral ones. With regard to the Reports, he was prevented from the necessity of giving them, as Professor Whewell had undertaken that task. There was one Report to which he would allude, he meant that of mineralogy, by the professor himself, as that, of all others, perhaps, was the one to which he would do the least justice. He might be allowed to say a word or two upon this Report, which gave a new aspect to the science of mineralogy.

England had been behindhand in these investigations when compared with the continent. The president, in a rapid manner, then adverted to the peculiar views connected with the discoveries of Sir David Brewster on optics, also to their connexion with the higher branches of chemistry; and he here took occasion to observe how all the sciences branched into each other; and from this topic he proceeded to comment on those indications of design, and of an universal predominating intelligence which was manifested through all the kingdoms of nature. He then remarked that man was compelled to ascend, by his intellectual nature, from the phenomena of laws; and the moment he grasped the idea of a law, he was compelled, by the very constitution of his intellectual nature, to consider that law as the annunciation of the will of a supreme Intelligence. He next made a short allusion to the question of physical optics; and, without deciding between the conflicting opinions, he took occasion to remark that the new theory of undulations had found its stoutest champions in the three old Universities of the empire. He then passed on to the more specific suggestions to scientific men given in various parts of the Report, and to the new subjects of investigation pointed out by the several writers of the published memoirs. He considered these instructions as of vital importance, and connected with the most essential objects of the Association. After complimenting Professors Whewell and Henslow for having made the preliminary preparations, and alluding to the week’s work before the meeting, he said he had now to state to them the readiness on the part of the authorities of the University to assist them. The vice-chancellor and the heads of colleges had expressed a willingness that every thing should be done, as far as circumstances admitted, to emulate the splendid reception which had been given to the Association by the sister University.”

(Having gone into other details, and explained the difference between Oxford and Cambridge respecting the grant of honorary degrees, the learned professor thus concluded:—)

“They had all read a passage, which was highly poetical, and which he should introduce here,—‘How beautiful upon the mountains are the feet of him that bringeth good tidings!’ If he might dare to make an adaptation of words so sacred, he would say that he was placed in the position he contemplated; for he had the glorious privilege of communicating that which would rejoice the heart of every true lover of science. There was a philosopher there, whose hair was blanched by time, but possessing an intellect which was still in its healthiest vigour, whose whole life had been devoted to the promotion of truth,—he meant Dr. Dalton; without the powerful apparatus which many possessed for making philosophical experiments, with very limited means for applying them, he had gone on in his course, and obtained for himself a reputation in those branches of science which he had cultivated, not perhaps equalled by that of any other living philosopher in the world.”

(The learned president then briefly alluded to the other business that would come before the meeting; and which would, we think, as we have already stated, be far better committed to daily bulletins, to be printed and circulated on the morning of each day.)

The Rev. W. Whewell next proceeded to address the meeting; and his admirable exposition of the preceding transactions of the Association was entirely worthy of his exalted reputation.\* This address the author liberally

\* As a portion of which, we would beg to refer to our review of his “Bridgewater Treatise.”—See L. G. No. 639.

printed at his own cost, and presented to the members; by which means we are enabled to gratify our readers with its perusal.

The British Association for the Advancement of Science, said the learned and highly gifted gentleman, meets at present under different circumstances from those which accompanied its former meetings. The publication of the volume containing the Reports applied for by the meeting at York, in 1831, and read before the meeting at Oxford last year, must affect its proceedings during our sittings on the present occasion; and thus we are now to look for the operation of one part of the machinery which its founders have endeavoured to put in action. Entertaining the views which suggested to them the scheme and plan of the Association, they must needs hope that such an event as this publication will exercise a beneficial influence upon its future career. This hope is derived, they trust, from no visionary or presumptuous notions of what institutions and associations can effect. Let none suppose that we ascribe to assembled numbers and conjoined labours extravagant powers and privileges in the promotion of science;—that we believe in the omnipotence of a parliament of the scientific world. We know that the progress of discovery can no more be suddenly accelerated by a word of command uttered by a multitude, than by a single voice. There is, as was long ago said, no royal road to knowledge—no possibility of shortening the way, because he who wishes to travel along it is the most powerful one; and just as little is there any mode of making it shorter, because they who press forward are many. We must all start from our actual position, and we cannot accelerate our advance by any method of giving to each man his mile of the march. Yet something we may do; we may take care that those who come ready and willing for the road, shall start from the proper point and in the proper direction;—shall not scramble over broken ground, when there is a causeway parallel to their path, nor set off confidently from an advanced point when the first steps of the road are still doubtful; shall not waste their powers in struggling forwards where movement is not progress, and shall have pointed out to them all glimmerings of light, through the dense and deep screen which divides us from the next bright region of philosophical truth. We cannot create, we cannot even direct the powers of discovery, but we may perhaps aid them to direct themselves; we may perhaps enable them to feel how many of us are ready to admire their success; and willing, so far as it is possible for intellects of a common pitch, to minister to their exertions. It was conceived that an exposition of the recent progress, the present condition, the most pressing requirements of the principal branches of science at the present moment, might answer some of the purposes I have attempted to describe. Several such expositions have accordingly been presented to the Association by persons selected for the task, most of them eminent for their own contributions to the department which they had to review; and these are now accessible to members of the Association and to the public. It appears to be suitable to the design of this body, and likely to further its aims, that some one should endeavour to point out the bearing which the statements thus brought before it may and ought to have upon its future proceedings, and especially upon the labours of the meeting now begun. I am well persuaded that if the president had taken this office upon himself, the striking and impor-

tant views which it may naturally suggest would have been presented in a manner worthy of the occasion: he has been influenced by various causes to wish to devolve it upon me, and I have considered that I should shew my respect for the Association better by attempting the task, however imperfectly, than by pleading my inferior fitness for it. The particular questions which require consideration, and the researches which most require prosecution, in the sciences to which the Reports now before you refer, will be offered to the notice of the sections of the Association which the subjects respectively concern, at their separate sittings. It is conceived that the most obvious and promising chance of removing deficiencies and solving difficulties in each subject, is to be found in drawing to them the notice of persons who have paid a continued and especial attention to the subject. The consideration of these points will therefore properly form a part of the business of the sectional meetings; and all members of the Association, according to their own peculiar pursuits and means, will thus have the opportunity of supplying any wanting knowledge, and of throwing light upon any existing perplexity. But besides this special examination of the suggestions which your reports contain, there are some more general reflections to which they naturally give rise, which may perhaps be properly brought upon this first general assembly of the present meeting; and which, if they are well founded, may preside over and influence the aims and exertions of many of us, both during our present discussions, and in our future attempts to further the ends of science. There is here neither time nor occasion for any but the most rapid survey of the subjects to which your reports refer, in the point of view in which the reports place them before you. Astronomy, which stands first on the list, is not only the queen of sciences, but, in a stricter sense of the term, the only perfect science; the only branch of human knowledge in which particulars are completely subjugated to generals, effects to causes; in which the long observation of the past has been, by human reason, twined into a chain which binds in its links the remotest events of the future; in which we are able fully and clearly to interpret nature's oracles, so that by that which we have tried we receive a prophecy of that which is untried. The rules of all our leading facts have been made out by observations of which the science began with the earliest dawn of history; the grand law of causation by which they are all bound together has been enunciated for 150 years; and we have in this case an example of a science in that elevated state of flourishing maturity, in which all that remains is to determine with the extreme of accuracy the consequences of its rules by the profoundest combinations of mathematics, the magnitude of its data by the minutest scrupulousness of observation; in which, further, its claims are so fully acknowledged, that the public wealth of every nation pretending to civilisation, the most consummate productions of labour and skill, and the loftiest and most powerful intellects which appear among men, are gladly and emulously assigned to the task of adding to its completeness. In this condition of the science it will readily be understood that Professor Airy, your reporter upon it, has had to mark his desiderata in no cases but those where some further development of calculation, some further delicacy of observation, some further accumulation of exact facts, are requisite; though in every branch of the subject, the labour of calculation, the delicacy of

observation, and the accumulation of exact facts, have already gone so far, that the mere statement of what has been done can hardly be made credible or conceivable to a person unfamiliar with the study. One article, indeed, in his list of recommendations to future labourers read at the last meeting of the Association, may appear capable of being accomplished by more limited labour than the rest—the determination of the mass of Jupiter by observations of the elongations of his satellites. And undoubtedly many persons were surprised when they found that on this, so obvious a subject of interest, no measures had been obtained since those which Pount took at the request of Newton. Yet in this case, if an accuracy and certainty worthy of the present condition of astronomy were to be aimed at, the requisite observations could not be few nor the calculation easy, when it is considered in how complex a manner the satellites disturb each other's motions. But the meeting will learn with pleasure that the task which he thus pointed out to others he has himself, in the intervening time, executed in the most complete manner. He has weighed the mass of Jupiter in the way he thus recommended; and it may shew the wonderful perfection of such astronomical measures to state, that he has proved with certainty that this mass is more than 322\* and less than 322\* times the mass of the terrestrial globe on which we stand. Such is astronomy; but in proceeding to other sciences, our condition and our task are of a far different kind: instead of developing our theories, we have to establish them; instead of determining our data and rules with the last accuracy, we have to obtain first approximations to them. This, indeed, may be asserted of the next subject on the list, though that is, in its principles, a branch of physical astronomy; for that alone, of all the branches of physical astronomy, had been almost or altogether neglected by men of science:—I speak of the science of the tides. Mr. Lubbock terminated his Report on this subject by lamenting, in Laplace's words, this unmerited neglect. He himself in England, and Laplace in France, were indeed the only mathematicians who had applied themselves to do some portion of what was to be done with respect to this subject. Since our meeting last year, Mr. Dessau has, under Mr. Lubbock's direction, compared the tides of London, Sheerness, Portsmouth, Plymouth, Brest, and St. Helena; and the comparison has brought to light very remarkable agreements in the law which regulates the time of high water—agreements both with each other and with theory, and has at the same time brought into view some anomalies which will give a strong impulse to the curiosity with which we shall examine the records of future observations at some of these places and at many others. I may perhaps here take the liberty of mentioning my own attempts, since our last meeting, to contribute something bearing on this department. It appeared to me that our knowledge of one particular branch of this subject—the motion of the tide-wave in all parts of the ocean—was in such a condition, that by collecting and arranging our existing materials, we should probably be enabled to procure abundant and valuable additions to them. This, therefore, I attempted to do; and I have embodied the result of this attempt in an "Essay towards a First Approximation to a Map of Cotidal Lines," which is now just printed in the

\* So corrected in ink, in our original copy, from the numbers 1047 and 1050.

*Transactions of the Royal Society of London.* In the case of the science of tides, we have no doubt about the general theory to which the phenomena are to be referred—the law of universal gravitation; though we still desiderate a clear application of the theory to the details. In another subject which comes under our review, the science of light, the prominent point of interest is the selection of the general theory. Sir David Brewster, the author of our Report on this subject, has spoken of 'the two rival theories of light,' which are, as you are aware, that which makes light to consist in material particles emitted by a luminous body, and that which makes it to consist in undulations propagated through a stationary ether. The rivalry of these theories, so far as they can now be said to be rivals, has been by no means barren of interest and instruction during the year which is just elapsed. The discussions on the undulatory theory in our scientific journals have been animated, and cannot, I think, be considered as having left the subject where they found it. The claims of the undulatory theory, it will be recollected, do not depend only on its explaining the facts which it was originally intended to explain; but on this—that the suppositions adopted in order to account for one set of facts, fall in most wonderfully with the suppositions requisite to explain a class of facts entirely different; in the same manner as in the doctrine of gravitation, the law of force which is derived from the revolutions of the planets in their orbits accounts for the apparently remote facts of the precession of the equinoxes and the tides. To all this there is nothing corresponding in the history of the theory of emission; and no one, I think, well acquainted with the subject, would now assert, that if this latter theory had been as much cultivated as the other it might have had a similar brilliant fortune in these respects. But if the undulatory theory be true, there must be solutions to all the apparent difficulties and contradictions which may occur in particular cases; and moreover the doctrine will probably gain general acceptance in proportion as these solutions are propounded and understood, and as prophecies of untried results are delivered and fulfilled. In the way of such prophecies few things have been more remarkable than the prediction that, under particular circumstances, a ray of light must be refracted into a conical pencil, deduced from the theory by Professor Hamilton of Dublin, and afterwards verified experimentally by Professor Lloyd. In the way of special difficulties, Mr. Potter proposed an ingenious experiment which appeared to him inconsistent with the theory. Professor Airy, from a mathematical examination of this case, asserted that the facts, which are indeed difficult to observe, must be somewhat different from what they appeared to Mr. Potter; and having myself been present at Professor Airy's experiments, I can venture to say that the appearances agree exactly with the results which he has deduced from the theory. Another gentleman, Mr. Barton, proposed other difficulties, founded upon the calculation of certain experiments of Biot and Newton; and Professor Powell, of Oxford, has pointed out that the data so referred to cannot safely be made the basis of such calculations, for mathematical reasons. There is, indeed, here also one question of fact concerning an experiment stated in Newton's *Optics*: in a part of the image of an aperture where Newton's statement places a dark line, in which Mr. Barton has followed him, Professors Airy,

Powell, and others, have been able to see only a bright space, as the theory would require. Probably the experiments giving the two different results have not been made under precisely the same circumstances; and the admirers of Newton are the persons who will least of all consider his immovable fame as exposed to any shock by these discussions. Perhaps, while the undulationist will conceive that his opinions have gained no small accession of evidence by this exemplification of what they will account for, those who think the advocates of the theory have advanced its claims too far, will be in some degree conciliated by having a distinct acknowledgment (as during these discussions they have had) of what it does not pretend to explain. The whole doctrine of the absorption of light is at present out of the pale of its calculations; and if the theory is ever extended to these phenomena, it must be by supplementary suppositions concerning the ether and its undulations, of which we have at present not the slightest conception. These are various of the physical subjects to which your Reports refer, which it is less necessary to notice in a general sketch like the present. The recent discoveries in thermo-electricity, of which Professor Cumming has presented you with a review, and the investigations concerning radiant heat which have been arranged and stated by Professor Powell, are subjects of great interest and promise; and they are gradually advancing, by the accumulation of facts bound together by subordinate rules, into that condition in which we may hope to see them subjugated to general and philosophical theories. But with regard to this prospect, the subjects I have mentioned are only the fragments of sciences on which we cannot hope to theorise successfully except by considering them with reference to their wholes—thermo-electricity with reference to the whole doctrine of electricity; radiant heat with reference to the whole doctrine of heat. If the subjects just mentioned be but parts of sciences, there is another on which you have a report before you, which, though treated as one science, is in reality a collection of several sciences, each of great extent. I speak of meteorology which is reported on by Professor Forbes. There is perhaps no portion of human knowledge more capable of being advanced by our conjoined exertions than this: some of the requisite observations demand practice and skill; but others are easily made, when the observer is once imbued with sound elementary notions; and in all departments of the subject little can be done without a great accumulation of facts, and a patient inquiry after their rules. Some such contributions we may look for at our present meeting. Professor Forbes has spoken of the possibility of constructing maps of the sky, by which we may trace the daily and hourly condition of the atmosphere over large tracts of the earth. If indeed we could make a stratigraphical analysis of the aerial shell of the earth, as the geologist has done of its solid crust, this would be a vast step for meteorology. This, however, must needs be a difficult task. In addition to the complexity of these superincumbent masses, time enters here as a new element of variety: the strata of the geologist continue fixed and permanent; those of the meteorologist change from one moment to another. Another difficulty is this, that while we want to determine what takes place in the whole depth of the aerial ocean, our observations are necessarily made almost solely at its bottom. Our access to the heights of the atmosphere is more limited, in

comparison with what we wish to observe, than our access to the depths of the earth. Geology, indeed, is a most signal and animating instance of what may be affected by continued labours governed by common views. Mr. Conybeare's report upon this science gives you a view of what has been done in it during the last twenty years; and his section of Europe, from the north of Scotland to the Adriatic, which is annexed to the report, conveys the general views with regard to the structure of Central Europe at which geologists have now arrived. To point out any more recent additions to its progress or its prospects, is an undertaking more suitable to the geologist by profession than to the present sketch. And all who take an interest in the subject will rejoice that the constitution and practice of the Geological Society very happily provide, by the annual addresses of its presidents, against any arrears in the incorporation of fresh acquisitions with its accumulated treasures. The science of mineralogy, on which I had the honour of offering a report to the Association, was formerly looked upon as a subordinate portion of geology. It may, however, now be most usefully considered as a science co-ordinate and closely allied with chemistry, and the most important questions for examination in the one science belong almost equally to the other. Mr. Johnston, in his report on chemical science, has, as the subject required, dwelt upon the questions of isomorphism and plesiomorphism, which I had noticed as of great importance to mineralogy. Dr. Turner and Professor Miller, who at the last meeting undertook to inquire into this subject, have examined a number of cases, and obtained some valuable facts; but the progress of our knowledge here necessarily requires time, since the most delicate chemical analysis and the exact measurement of thirty or forty crystals are wanted for the satisfactory establishment of the properties of each species. In chemistry, besides the great subject of isomorphism to which I have referred, there are some other yet undecided questions, as, for instance, those concerning the existence and relations of the sulpho-salts and chloro-salts; and these are not small points, for they affect the whole aspect of chemical theory, and thus shew us how erroneously we should judge, if we were to consider this science as otherwise than in its infancy. In every science, notation and nomenclature are questions subordinate to calculation and theory. The notation of crystallography is such as to answer the purposes of calculation, whether we take that of Mohs, Weiss, or Nauman. It appears very desirable that the notation of chemistry also should be so constructed as to answer the same purpose. Dr. Turner in the last edition of his *Chemistry*, and Mr. Johnston in his report, have used a notation which has this advantage, which that commonly employed by the continental chemists does not possess. I have elsewhere stated to the Association how little hope there appears at present to be of purifying and systematising our mineralogical nomenclature. The changes of theory in chemistry to which I have already referred, must necessarily superinduce a change of its nomenclature, in the same manner in which the existing nomenclature was introduced by the prevalent theory; and the new views have in fact been connected with such a change by those who have propounded them. It will be for the chemical section of the Association to consider how far these questions of nomenclature and notation can be discussed with advantage at the present meeting. The reports presented at the last meeting had a

reference, for the most part, to physical rather than physiological science. The latter department of human knowledge will be more prominently the subject of some of the reports which are to come before us on the present occasion. There is, however, one of last year's reports which refers to one of the widest questions of physiology; that of Dr. Pritchard on the History of the Human Species, and its subdivision into races. The other lines of research which tend in the same direction will probably be brought before the Association in successive years, and thus give us a view of the extent of knowledge which is accessible to us on this subject. In addition to these particular notices of the aspect under which various sciences present themselves to us as resulting from the reports of last year, there is a reflection which may, I think, be collected from the general consideration of these sciences, and which is important to us, since it bears upon the manner in which science is to be promoted by combined labour, such as that which it is a main object of this Association to stimulate and organise. The reflection to which I refer is this—that a combination of theory with facts, of general views with experimental industry, is requisite, even in subordinate contributors to science. It has of late been common to assert that facts alone are valuable in science; that theory, so far as it is valuable, is contained in the facts; and, so far as it is not contained in the facts, can merely mislead and preoccupy men. But this antithesis between theory and facts has probably in its turn contributed to delude and perplex; to make men's observations and speculations useless and fruitless. For it is only through some view or other of the *connexion and relation* of facts, that we know what circumstances we ought to notice and record; and every labourer in the field of science, however humble, must direct his labours by some theoretical views, original or adopted. Or, if the word *theory* be unconquerably obnoxious, as to some it appears to be, it will probably still be conceded, that it is the rules of facts, as well as facts themselves, with which it is our business to acquaint ourselves. That the recollection of this may not be useless, we may collect from the contrast which Professor Airy in his Report has drawn between the astronomers of our own and of other countries. 'In England,' he says (p. 184), 'an observer conceives he has done every thing when he has made an observation.' 'In foreign observations,' he adds, 'the exhibition of the results, and the comparison of the results with theory, are considered as deserving more of an astronomer's attention, and demanding greater exertion of his intellect, than the mere observation of a body on the wire of a telescope.' We may indeed perceive, in some measure, the reason which has led to the neglect of theory with us. For a long period, astronomical theory was greatly a-head of observation, and this deficiency was mainly supplied by the perseverance and accuracy of English observers. It was natural that the value and reputation which our observations thus acquired for the time, should lead us to think too disrespectfully, in comparison, of the other departments of the science. Nor is the lesson thus taught us confined to astronomy; for, though we may not be able in other respects to compare our facts with the results of a vast and yet certain theory, we ought never to forget that facts can only become portions of knowledge as they become classed and connected; that they can only constitute truth when they are included in general propositions. Without some attention to this

consideration, we may notice daily the changes of the winds and skies, and make a journal of the weather, which shall have no more value than a journal of our dreams would have; but if we can once obtain fixed measures of what we notice, and connect our measures by probable or certain rules, it is no longer a vacant employment to gaze at the clouds, or an unprofitable stringing together of expletives to remark on the weather; the caprices of the atmosphere become steady dispositions, and we are on the road to meteorological science. It may be added—as a further reason why no observer should be content without arranging his observations, in whatever part of physics, and without *endeavouring* at least to classify and connect them—that when this is not done at first, it will most likely never be done. The circumstances of the observation can hardly ever be properly understood or interpreted by others; the suggestions which the observations themselves supply, for change of plan or details, cannot in any other way be properly appreciated and acted on. And even the mere multitude of unanalysed observations may drive future students of the subject into a despair of rendering them useful. Among the other desiderata in astronomy which Professor Airy mentions, he observes 'Bradley's observations of stars,' made in 1750, 'were nearly useless till Bessel undertook to reduce them' in 1818. 'In like manner, Bradley's and Maskelyne's observations of the sun are still nearly useless,' and they and many more must continue so till they are reduced. This could not have happened if they had been reduced and compared with theory at the time; and it cannot but grieve us to see so much skill, labour, and zeal, thus wasted. The perpetual reference or attempt to refer observations, however numerous, to the most probable known rules, can alone obviate similar evils. It may appear to many, that by thus recommending theory, we incur the danger of encouraging theoretical speculations, to the detriment of observation. To do this would be indeed to render an ill service to science; but we conceive that our purpose cannot so far be misunderstood. Without here attempting any nice or technical distinctions between theory and hypothesis, it may be sufficient to observe, that all *deductions from theory for any other purpose than that of comparison with observation* are frivolous and useless exercises of ingenuity, so far as the interest of physical science is concerned. Speculators, if of active and inventive minds, will form theories, whether we wish it or not. These theories may be useful or may be otherwise; we have examples of both results. If the theories merely stimulate the examination of facts, and are modified as and when the facts suggest modification, they may be erroneous, but they will still be beneficial; they may die, but they will not have lived in vain. If, on the other hand, our theory be supposed to have a truth of a superior kind to the facts—to be certain, independently of its exemplification in particular cases—if, when exceptions to the propositions occur, instead of modifying the theory, we explain away the facts, our theory then becomes our tyrant, and all who work under its bidding do the work of slaves, they themselves deriving no benefit from the result of their labours. For the sake of example, we may point out the Geological Society as a body which, labouring in the former spirit, has ennobled and enriched itself by its exertions; if any body of men should employ themselves in the way last described, they must soon expend the small stock of *a priori* plausibility with which they must

of course begin the world. To exemplify the distinction for a moment longer, let it be recollected that we have at the present time two rival theories of the history of the earth which prevail in the minds of geologists; one which asserts that the changes of which we trace the evidence in the earth's materials have been produced by causes such as are still acting at the surface; another, which considers that the elevation of mountain chains, and the transition from the organised world of one formation to that of the next, have been produced by events which, compared with the present course of things, may be called catastrophes and convulsions. Who does not see that all that those theories have hitherto done has been to lead geologists to study more exactly the laws of permanence and of change in the existing organic and inorganic world, on the one hand; and on the other, the relations of mountain chains to each other, and to the phenomena which their strata present? And who doubts, that, as the amount of the full evidence may finally be (which may indeed, perhaps, require many generations to accumulate), geologists will give their assent to the one or the other of these views, or to some intermediate opinion to which both may gradually converge? On the other hand, to take an example from a science with which I have had a professional concern, the theory that crystalline bodies are composed of ultimate molecules which have a definite and constant geometrical form, may properly and philosophically be adopted, so far as we can, by means of it, reduce to rules the actually occurring secondary faces of such substances. But if we assume the doctrine of this composition, and then form imaginary arrangements of these atoms, and enunciate these as explanations of dimorphism, or plesiomorphism, or any other apparent exception to the general principle, we proceed, as appears to me, unphilosophically. Let us collect and classify the facts of dimorphism and plesiomorphism, and see what rules they follow, and we may then hope to discern whether our atomic theory of crystalline molecules is tenable, and what modifications of it these cases, unaccounted for in its original formation, now demand. I will not now attempt to draw forth other lessons which the Report of last year may supply for our future guidance; although such offer themselves, and would undoubtedly affect the spirit of our proceedings during this meeting. But there is a reflection belonging to what I may call the morals of science, which seems to me to lie on the face of this Report, and which I cannot prevail upon myself to pass over. In looking steadily at the past history and present state of physical knowledge, we cannot, I think, avoid being struck with this thought:—How little is done and how much remains to do;—and again, notwithstanding this, how much we owe to the great philosophers who have preceded us. It is sometimes advanced as a charge against the studies of modern science, that they give men an overweening opinion of their own acquirements—of the superiority of the present generation,—and of the intellectual power and progress of man:—that they make men confident and contemptuous, vain and proud. That they *never* do this, would be much to say of these or of any other studies; but, assuredly, those must read the history of science with strange prepossessions who find in it an aliment for such feelings. What is the picture which we have had presented to us? Among all the attempts of man to systematise and complete his knowledge, there is one science, astronomy, in which he may be considered to have been suc-

cessful; he has there attained a general and certain theory: for this success, the labour of the most highly gifted portion of the species for 5000 years has been requisite. There is another science, optics, in which we are, perhaps, in the act of obtaining the same success, with regard to a part of the phenomena. But all the rest of the prospect is comparatively darkness and chaos; limited rules, imperfectly known, imperfectly verified, connected by no known cause, are all that we can discern. Even in those sciences which are considered as having been successful, as chemistry, every few years changes the aspect under which the theory presents the facts to our minds, while no theory, as yet, has advanced beyond the mere horn-book of calculation. What is there here of which man can be proud, or from which he can find reason to be presumptuous? And even if the discoverers to whom these sciences owe such progress as they have made—the great men of the present and the past—if THEY might be elate and confident in the exercise of their intellectual powers, who are *we*, that we should ape their mental altitudes?—we, who can but with pain and effort keep a firm hold of the views which they have disclosed? But it has not been so; they, the really great in the world of intellect, have never had their characters marked with admiration of themselves and contempt of others. Their genuine nobility has ever been superior to those ignoble and low-born tempers. Their views of their own powers and achievements have been sober and modest, because they have ever felt how near their predecessors had advanced to what they had done, and what patience and labour their own small progress had cost. Knowledge, like wealth, is not likely to make us proud or vain, except when it comes suddenly and unearned; and in such a case, it is little to be hoped that we shall use well, or increase, our ill-understood possession. Perhaps some of the appearance of overweening estimation of ourselves and our generation which has been charged against science, has arisen from the natural exultation which men feel at witnessing the successes of art. I need not here dwell upon the distinction of science and art;—of knowledge, and the application of knowledge to the uses of life;—of theory and practice. In the success of the mechanical arts there is much that we look at with an admiration mingled with some feeling of triumph; and this feeling is here natural and blameless. For what is all such art but a struggle;—a perpetual conflict with the inertness of matter and its unfitness for our purposes? And when, in this conflict, we gain some point, it is impossible we should not feel some of the exultation of victory. In all stages of civilisation this temper prevails:—from the naked inhabitant of the islands of the ocean, who by means of a piece of board glides through the furious and apparently deadly line of breakers, to the traveller who starts along a rail-road with a rapidity that dazzles the eye, this triumphant joy in successful art is universally felt. But we shall have no difficulty in distinguishing this feeling from the calm pleasure which we receive from the contemplation of truth. And when we consider how small an advance of speculative science is implied in each successful step of art; we shall be in no danger of imbibing, from the mere high spirits produced by difficulty overcome, any extravagant estimate of what man has done or can do—any perverse conception of the true scale of his aims and hopes. Still, it would little become us here to be unjust to practical science. Practice has always been the origin and stimulus of theory;

Art has ever been the mother of Science; the comely and busy mother of a daughter of a far loftier and serener beauty. And so it is likely still to be: there are no subjects in which we may look more hopefully to an advance in sound theoretical views, than those in which the demands of practice make men willing to experiment on an expensive scale, with keenness and perseverance; and reward every addition of our knowledge with an addition to our power. And even they—for undoubtedly there are many such—who require no such bribe as an inducement to their own exertions, may still be glad that such a fund should exist, as a means of engaging and recompensing subordinate labourers. I will not detain you longer by endeavouring to follow more into detail the application of these observations to the proceedings of the General and Sectional Meetings during the present week. But I may remark that some subjects, circumstanced exactly as I have described, will be brought under your notice by the reports which we have reason to hope for on the present occasion. Thus, the state of our knowledge of the laws of the motion of fluids is universally important, since the motion of boats of all kinds, hydraulic machinery, the tides, the flowing of rivers, all depend upon it. Mr. Stevenson and Mr. Rennie have undertaken to give us an account of different branches of this subject as connected with practice; and Mr. Challis will report to us on the present state of the analytical theory. In like manner the subject of the strength of materials, which the multiplied uses of iron, stone and wood, make so interesting, will be brought before you by Mr. Barlow. These were two of the portions of mechanics the earliest speculated upon, and in them the latest speculators have as yet advanced little beyond the views of the earliest. I mention these as specimens only of the points to which we may more particularly direct our attention. I will only observe in addition, that if some studies, as for instance those of natural history and physiology, appear hitherto to have occupied less space in our proceedings than their importance and interest might justly demand, this has occurred because the reports on other subjects appeared more easy to obtain in the first instance; and the balance will, I trust, be restored at the present meeting. I need not add any thing further on this subject. Among an assembly of persons such as are now met in this place, there can be no doubt that the most important and profound questions of science in its existing state will be those which will most naturally occur in our assemblies and discussions. It merely remains for me to congratulate the Association upon the circumstances under which it is assembled; and to express my persuasion that all of us, acting under the elevating and yet sobering thought of being engaged in the great cause of the advancement of true science, and cherishing the views and feelings which such a situation inspires, shall derive satisfaction and benefit from the occasions of the present week.

Having given insertion to this clear and masterly view of the Association, as refers to the past, the present, and the future, we must here pause in our Journal; and simply wind it up to the end of Tuesday by stating, that at the evening meeting Mr. Taylor read a paper on geology, which led to a lengthened discussion; and for the nature of which we would refer to our previous remarks on the Section A.

In our next we shall adventure to paint the extraordinary Ordinary of this day, and then continue the scientific details; respecting which we invite the communications of our friends

who were present, as they would fill lacunæ in our own (possible) observations.

#### REVIEW OF NEW BOOKS.

*Indian Traits. Being Sketches of the Manners, Customs, and Characters of the North American Natives.* By J. B. Thatcher, author of the "Lives of the Indians," in the Family Library. 2 vols. 12mo. New York, 1833. J. and J. Harper.

The great edifice of civilised society is supported on many arches, whereof the majority have been laid in ignorance and crime; jarring interests have yielded not to right, but to strength; countries have been cemented by the most barbarous conquests, and governments based on unjustifiable tyranny. Gradually, but slowly, the builders began to consider of their labours, and to arrive at the theory, (not yet at the practice), that universal justice is the key-stone of the building—the only stay by which their endeavours may endure, and that, in very selfishness, the rights of others are as much to be considered as their own. It is in vain to judge of the future by the past, for the past departs never to return: one great nation moulders after another into dust, but none leave the same lesson on the page of history. Those gigantic cities—bequeathing dim but magnificent memories, the architectural giants of the old world—Babylon, Nineveh, and Tyre, crumbled to decay beneath other influences than those which subdued the beauty of Athens, and laid prostrate the power of Rome. Other causes, again, even in our modern experience, took the sea-sceptre from Venice, and left her glittering galleys to rot amid the weeds of her dull canals; other causes have parted the warlike glory of the Crescent, and left the Moslem empire but the spectre of itself: the lesson of the rise and of the downfall has ever been repeated, but still after a varying fashion. Is there some retributive principle at work from the beginning, slow as eternity, and as inevitable? Do ages accumulate crime, and at length terribly avenge themselves on the worn-out and weakest of their race? A mighty people have perished, and their few scattered remains are vanishing from the face of the earth; a whole continent is all but depopulated; her original indwellers will soon have left but a name for the historian, and a legend for the poet; a nation from afar task the richness of her soil, and look on that once unknown world as their own familiar home. What fearful sins, far hidden in the future, have brought down this judgment on the Indian, who may dare to say? Destiny herself conducted the white man across the Atlantic; it is not at his will to arrest the doom; the land is given unto him for a possession, and therefore none may say in what space will he sow his harvests, and build his cities in security. But one lesson is written deep within the irrevocable past—that nations, like individuals, have their futurity of punishment; that even as they measure will it be meted out unto them, and from their own deeds arise up the ministers of reward or of revenge. The Americans owe the old age of their predecessors alleviation. To arrest the progress of their destruction is not in their hand. Decay has begun upon the body, and it must perish; but uprightness, truth, and even kindness in their dealings—an attempt at least to diffuse their blessings among a fallen race, are duties demanded at their hands, and which will assuredly be required unto them hereafter. The Indians present the historical phenomenon of a brave and intelligent people, entirely deficient in the de-

sire and the progress of social civilisation; war is the compendium of their annals, and war leading to none of its usual results—to satiety and security. They had superstition, but no religion, (we mean no form established with acknowledged and fixed ceremony); occasional authority, but no government; no literature, no science, no commerce; no arts, save those of the lowest domestic utility; and yet, with every natural advantage of climate and country, and having centuries undisturbed to work out their improvement. But hunters and warriors they were at first, and hunters and warriors they remained. The little volumes which, having just crossed the Atlantic, are now before us, give a most interesting bird's-eye view of their history; and history with the Indians is more a record of manners and adventures, than of politics. Mr. Thatcher's capabilities for the task are well known; he is industrious, intellectual, and imbued with that deep interest in his subject, without which no work worth having was ever produced. These pages are eminently calculated for popular reading, and form excellent companions to his previous and attractive performance, "Lives of the Indians." We select a few chance specimens, and cordially recommend the volumes themselves.

*During of an Indian Woman.*—"It is related that, early in the last century, during a long war between France and Great Britain, in which most of the northern tribes of the country, as well as the New England Provinces, were involved, a small band of Canadian Indians, consisting of ten warriors, attended by two of their wives, made an irruption into the back settlements of New England. They lurked for some time in the vicinity of one of the most exterior towns; and at length, after having killed and scalped several people, found means to take prisoner a woman who had with her a son of about twelve years of age. Being satisfied with the execution they had done, they retreated towards their native country, which lay at three hundred miles distance, and carried off with them their two captives. The second night of their retreat, the woman formed a resolution worthy of the most intrepid hero. She thought she should be able to get from her hands the manacles by which they were confined, and determined if she did so, to make a desperate effort for the recovery of her freedom. To this purpose, when she concluded that her conquerors were in their soundest sleep, she strove to slip the cords from her hands. In this she succeeded; and cautioning her son, whom they had suffered to go unbound, in a whisper, against being surprised at what she was about to do, she removed to a distance with great wariness the defensive weapons of the Indians, which lay by their sides. Having done this, she put one of the tomahawks into the hands of the boy, bidding him to follow her example; and taking another herself, fell upon the sleeping Indians, several of whom she instantly despatched. But her attempt was nearly frustrated by the imbecility of her son, who, wanting both strength and resolution, made a feeble stroke at one of them, which only served to awaken him: she however sprung at the rising warrior, and before he could recover his arms, made him sink under the weight of her tomahawk; and this she alternately did to all the rest, except one of the women, who awoke in time, and made her escape. The heroine then took off the scalps of her vanquished enemies, and seizing also those they were carrying away with them as proofs of their success, she returned in triumph to the town from whence she had so lately been

dragged, to the great astonishment of her neighbours, who could scarcely credit their senses, or the testimonies she bore of her amazonian intrepidity."

As regards the crime of murder:

"In this village, at the time referred to, were two Indians of considerable note; the one for his great strength and activity, and the other for his stature, for he was at least six feet four inches in height. These two meeting each other one day in presence of a third, the tall man made use of some insulting language to the other. He called him a coward, and so provoked him by several expressions equally abusive, that the insulted savage altogether lost the command of his temper. 'You have called me a coward, truly,' he said, at length—'but you never will do it again!' and he stabbed him through the body with a knife, at the same moment, so that he dropped dead at his side. The alarm was immediately spread through the village, and a crowd of Indians assembled. The murderer made no attempt to fly. He heard the people crying—'Kill him! Kill him!'—but, saying not a word, nor moving a step, he seated himself on the ground near the dead body, and calmly awaited the result. Still, whether they feared his strength, or respected his courage too much to take his life,—no one came forward to lay hands on him. He even placed his head and body in a proper posture for receiving the stroke of the tomahawk; but the Indians who had gathered around him, only tarried to take away the body of the deceased, and then left him alone. Not meeting here with the treatment he expected, he rose from this place, went to a more public part of the village, and there lay down on the ground, in the hope of being the sooner despatched; but the spectators, after viewing him, all retired again. Sensible that his life was justly forfeited, and anxious to be relieved from a state of suspense, he took the resolution to go to the mother of the deceased, an aged widow, whom he addressed in these words: 'Woman, I have killed thy son; he had insulted me, it is true; but still he was thine, and his life was valuable to thee. I, therefore, now surrender myself up to thy will. Direct as thou wilt have it, and relieve me speedily from misery.' To which the woman answered; 'Thou hast, indeed, killed my son, who was dear to me, and the only supporter I had in my old age. One life is already lost, but to take thine on that account cannot be of any comfort to me, or better my situation. Thou hast, however, a son, whom if thou wilt give me in the place of my son whom thou hast slain, all shall be wiped away.' The murderer then replied: 'Mother, my son is yet but a child, ten years old, and can be of no service to thee, but rather a trouble and charge; but here am I, truly capable of supporting and maintaining thee: if thou wilt receive me as thy son, nothing shall be wanting on my part to make thee comfortable while thou livest.' The woman, approving of the proposal, forthwith adopted him as her son, and took the whole family to her house.—We shall now relate, in further illustration of the customs and feelings already spoken of in this chapter, a story related of two Choctaws, by a respectable American lady who was herself an eye-witness of the scene she describes. 'Jenny,' as the whites called her, was the wife of a Choctaw, who, about thirty years ago, murdered an Indian of his own tribe; and then fled over the Mississippi into Louisiana, where, however, he was overtaken and killed by his pursuers. Jenny, with four or five small children, of whom the eldest was called by the

whites, 'Tom,'—in his own language, Hocktanlubbee,—afterwards moved into a tribe in the neighbourhood of St. Francisville. Here, among other new acquaintances, she met with a wealthy American lady, a widow, who had compassion upon her, and often relieved her wants. After she had lived here a long time, Tom, who was now twenty-five years old, unfortunately fell into some dispute with an old Indian, of which the result was, that he murdered him on the spot. Of course his own life was demanded in satisfaction, and a day was soon appointed for inflicting the public punishment of his crime. A large assembly was collected on that occasion, including all the friends and relatives both of the murderer and the murdered, and every thing was now ready for the expected execution of Tom, who silently awaited his fate in the midst of the gazing throng. The executioners and the instruments of death were beside him. At this moment, his poor old mother, Jenny, was seen pressing eagerly through the crowd. She came forward, and addressed herself to the relations of the deceased, and to the company at large. 'Poor Tom is young,' she said; 'he has a wife, children, brothers, sisters, all dependent upon him for subsistence. As for me, I have only a few days at most, and can do but little more for my family. Nor is this just,' she added, turning to the chiefs who were present; 'it is a shame to take a new garment (meaning, the life of a young person) for an old one.' Whether the company agreed with her in this view of the matter, or whether the relations of the deceased were disposed to be satisfied with her own sacrifice, her offer was accepted, and a few hours allowed her to prepare for death. In this interval she repaired to the house of her kind friend, the American lady, which was not very distant, for the purpose of seeing her for the last time. The lady was all this time wholly ignorant of what had been going on in the Indian village. Nor did Jenny say any thing about the affair. She had come, she said, to beg a coffin and a winding-sheet for her son. 'When the sun has reached its height,' she added, pointing upwards, 'poor Tom must die.' The lady did all she could to comfort her, and gave her what she requested, without suspecting the arrangement she had made to save the criminal's life. 'But how long must the coffin be?' she inquired. 'Oh, make them to suit my size,' Jenny replied, 'and they will answer very well for Tom.' Soon after she had left the lady's house, a messenger arrived in haste from the camp, and informed her that Jenny was about being executed by the Indians. She now hastened to reach the place in time to save the doomed victim; but Jenny, the moment she saw her carriage coming, at a distance, doubtless imagining what was her object, standing by her grave, caught the muzzle of the gun, the prepared instrument of her death, and pointing it to her heart, entreated the executioner immediately to do his duty. He obeyed, and she fell dead. During five years after this, Tom was treated with sneers and contempt by the friends of the old man whom he had murdered. They said to him, 'You coward! let your mother die for you! You afraid to die, coward!' Tom could not endure all this. Some time afterwards he met a son of the old man whom he had murdered on the bank of the Mississippi, ten miles from his home, and for some cause unknown (probably he had been his principal tormentor), plunged his knife into him, giving him a mortal wound. He returned home with indications of triumph, brandishing his bloody knife, and, without waiting for inquiry, confessed what he

had done. He told his Indian friends that he would not live to be called a coward. 'I have been told,' he said, 'that I fear to die. Now you shall see that I can die like a man.' A wealthy planter, whose house he passed, he invited to witness how he could die. This was on the Sabbath. Twelve o'clock, Monday, was the hour which he appointed for this self-immolation. Here, says our informant, a scene was presented which baffles description. As she approached the place, Tom was walking forward and back again, still keeping in his hand the bloody knife, which he seemed to consider, as the duellist does his sword or pistol, his badge of honour. With all his efforts to conceal it, he discovered marks of an agitated mind. The sad group present, consisted of about ten men, and as many females; the latter, with sorrowful countenances, were employed in making an over-shirt for Tom's burial. The men, all except two brothers of Tom, were present, smoking their pipes, with apparent unconcern. Several times Tom examined his gun, and remained silent. His grave had been dug the day before, and he had laid himself down in it, to see if it suited as to length and breadth. When the shirt was completed, and handed to him, he immediately put it over another garment, the only one he had on; drew a pair of calico sleeves on his arms; tied two black silk handkerchiefs round each shoulder, crossed on the breast, and wrapped a third about his head. His long hair was tied with a blue ribbon, and he had a yard or two on each arm, above the elbow. The pipe of peace went round thrice. The old chief's wife then arose, retired into the bushes, and sung the death-song, in words rendered in English, 'Time is done; Death approaches.' This done, Tom went round and shook hands with every person present. While he held the hand of one of his neighbours, a white man, he said to him, 'Farewell; you see me no more in this world. When you die, you see me.' His neighbour said, 'Tom, where are you going?' 'I am going to mother,' said Tom. 'Where is your mother?' 'In a good place.' 'But, Tom, will you not wait? Perhaps the friends of the young man you killed will accept of a ransom. We will do what we can to save you.' Tom replied, 'No, I will die.' No one had demanded his death; for all who were interested, and would have considered their honour and duty concerned in it, resided at the distance of forty or fifty miles. The death-song was repeated, as was the shaking of hands. Both were again repeated, the third and last time. Immediately after, Tom stepped up to his wife, a young woman of eighteen, with an infant in her arms, and another little child, two or three years old, standing by her side, and presented to her the bloody knife, which till now he had kept in his hand. She averted her face to conceal a falling tear; but recovering herself, turned, and took it with a faint, forced smile. His sister was sitting by the side of his wife, so wholly absorbed in grief, as to be apparently insensible to what was passing; her eyes vacant, fixed on some distant object. It was a perfect picture of woe. His pipe he gave to a young brother, who struggled hard to conceal his emotions. He then drank a little whisky and water, dashed the bottle on the ground, sang a few words in the Choctaw language, and with a jumping, dancing step, hurried to his grave. His gun was so fixed, by the aid of a young sapling, as to enable him to take his own life. No one, he had declared, should take it from him. These preparations and ceremonies being now completed, he gave the

necessary touch to the apparatus; the gun was discharged, and its contents passed through his heart. He instantly fell dead to the earth. The females sprang to the lifeless body. Some held his head, others his hands and feet, and others knelt at his side. He had charged them to shew no signs of grief while he lived, lest it should shake his resolution. As far as possible, they had obeyed. Their grief was restrained till he was dead. It now burst forth in a torrent, and their shrieks and lamentations were loud and undiminished.

There are some spirited etchings, which to the more juvenile readers will be especially acceptable, thus enabling them to give likeness to the scenes described.

*Narrative of the Expedition to Portugal, in 1832, under the Orders of His Imperial Majesty Dom Pedro, Duke of Braganza.* By G. Lloyd Hodges, Esq., late Colonel in the Service of Her Most Faithful Majesty the Queen of Portugal. 2 vols. 12mo. London, 1833. Fraser.

No person could be enabled by disposition and circumstances to afford a clearer view of the contest in Portugal than the author of these volumes; who, being a gentleman of discernment, and an ardent admirer of the "Constitutional" expedition, it may readily be believed is incapable of falsifying facts, so as to create false public impressions, or of exaggerating successes and misrepresenting the actual situation of the parties, to promote interested purposes on either side. He set out a hearty Pedroite, or, as he styles it, a Patriot; he has returned a disappointed man, but still professing warm attachment to the cause, the ill success of which he attributes to the incapacity and intrigues of the counsellors who surround the Duke of Braganza. Of these Xavier and Freire appear to be principally obnoxious to his objections; while Villa Flor (now Duke of Terceira) and Palmella are especially noted as good and true. Saldanha, who we see by the newspapers this very week has succeeded to the chief command, in consequence of the resignation of the French General, Solignac, which, by the by, throws a doubtful light on the conclusion come to in the volumes before us—is thus sketched:—

"I cannot, however, conclude (says our author) without a few words, which I am prompted by a sense of justice to offer, in behalf of an individual whose name has been most unwarrantably used in connexion with the scheme to supersede Solignac, which was set at work about three weeks after his arrival at Oporto. The officer to whom I allude is General Saldanha. His known good-nature rendered him on that occasion the unwilling instrument of the artifices projected by others; and he was brought into mention as the proper person to take the direction of the army, without being himself in any way a party, as to intention, in the affair. Indeed he personally withdrew to that part of the line of fortifications which he had been appointed to the charge of, and afterwards rarely entered the town of Oporto. In that situation he was most active, and continued to evince his usual sagacity and courage. It is only to be regretted that he did not, in the onset of the intrigue, denounce its author, and mark emphatically a determination on his own part to support the newly received commander. No candid person, however, would go so far as to censure Saldanha for this omission, if he were made duly sensible of the embarrassments thrown in the way of the most honourable men by that odious net of intrigue which has en-

vironed every thing at Oporto from the first entry of the Constitutionalists to the present hour."

We now, however, see him in this very station—a proof how difficult it is to unravel all the workings of the factions and the ambitious intrigues which surround this eventful enterprise.

It is not our province to enter upon the task of elucidating these mysteries—we must leave them to the progress of time; but may remark, that at the present hour it is out of our power to find a coherence among the reports and inferences, the absolute facts and the conclusions, of which Colonel Hodges shews us the prevalence throughout the affair. There is one broad and important consideration which we cannot avoid observing on the general character of this struggle, viz. that it is not one part of Portugal or the Portuguese, against another, but principally a foreign invasion, sustained by parties who have no national or individual concern whatever in the settlement of the crown and kingdom. The complicity of this force employs the author's pen a good deal, and no doubt it is of a very mixed description, though he glosses over the worst features with considerable ingenuity. Yet, in spite of his partiality for his companions in arms, we confess that, with some exceptions, they do appear, even on his own shewing, to have been ('have been' is a truly applicable phrase, for the majority have ceased to be) a worthless set. Desperately brave, the French and English auxiliaries moulted no feather of their countries' fame in the battle-field; but, alas, for discipline, for conduct, in every other respect! Thieves, drunkards, and brawlers, it is not easy to determine whether they made themselves most dreaded by their enemies or most detested by their friends.

An admission of the author towards the close of his career at Oporto, will exhibit the obvious state of the question as a civil war.

"Donna Maria held one solitary city in the kingdom, without a known friend beyond its walls; and held that city, too, by the valour principally of foreigners, who were treated constantly with insult and disdain; and further, received the funds necessary for retaining her precarious possession from the French and English nations, which her advisers despised and hated."

This is a strong case; and we add a further illustration, at once humorous and striking:—

"Meeting a party of the French, half-drunk, one Sunday afternoon (says the colonel) in the public streets, I stopped them, and desired they would return immediately to their quarters. They all forthwith obeyed the injunction, with the exception of one defaulter, an old grey-mustachioed drummer, who was decorated with the order of the Legion of Honour. He told me that he had received the cross from the hands of the Emperor Napoleon himself, and, thus supported in his appeal, begged, with a sort of modest assurance, that I would allow him to have *encore une petite goutte*. To get rid of his importunity, I told him he was *une vieille canaille*; to which he replied, *C'est vrai, mon Colonel! Si je n'étais pas une vieille canaille, je ne serais pas ici!* The sly point conveyed in this admission too much diverted me to admit of my continuing the reprimand—so I even left the old drummer to take his *petite goutte* without further interruption."

Having expressed our inability to distinguish what business "that little band of foreigners" (Preface, p. i.), who have filled so conspicuous

a part in the expedition of Dom Pedro," had "in defence of the liberties of Portugal," we shall proceed to quote some traits of their composition. In the first recruiting, the author tells us:—

"It cannot be denied, and it is a fact which ought to be stated, that among those who flocked from all parts of the kingdom to avail themselves of the employment now offered, were included not a few adventurers of the most doubtful character; whilst, on the other hand, there were some of a reputation already sufficiently established, and others (who would have done honour to any service) of the highest promise. A disadvantageous publicity was incurred on account of the less reputable portion of the aspirants, and was increased through the imprudence of a few of those individuals who had been previously engaged for the expedition."

The agents to crimp and procure these supplies, and forward them to their destination, we had almost said destiny, seem, from the portrait of one of the best and most efficient of them, to have been tolerably regardless of the laws of their own country. *Es. gr.* "I had been (says Col. H.) made acquainted with a certain person, a Mr. A., admirably qualified by local knowledge to assist in getting our force quietly and safely passed through the river. He was, I had understood, a man of intelligence, enterprise, and coast-wise habits, having also a perfect familiarity with every creek and private landing-place in the serpentine course of the Thames. With him I immediately communicated. The advantage of his ruddy, bold, and bluff presence was speedily obtained; and on my making known to him precisely the object I had in view, he entered warmly into it, and, with the frankness and boldness of character peculiar to the individual, admitted of no difficulties in the way of our design, but exclaimed, (to repeat his own words,) 'O! sir, were it necessary for the cause of liberty, I would engage to send 5000 men out of this country to any part of the continent, in spite of all the acts of parliament they ever made, or all the police and preventive men that were ever embodied.' With such a coadjutor, I could hardly fail to accomplish what was wished."

At Terceira, where he landed three days after his men, the author relates:—

"I lost no time in proceeding, accompanied by an aide-de-camp of the count's, to the convent where they were quartered. On the way I met with one of my own officers, who prepared me in some degree for the scene of disorder and mutiny which I was to witness. At the place itself I found no fewer than ten of the refractory men bound, hands and feet, with cords. Others were in that state of drunkenness that had led them to strike and knock down their officers but a few moments before. Nor was this the worst of the spectacle that met my view, for, in a detached cell close by the guard-room, lay the corpse of a poor fellow named William Davis, who had been assassinated early that morning, and was found in a passage near the convent-garden wall. The body of this wretched man presented one of the most shocking sights I ever witnessed. He was cut and mangled in almost all parts of his person. The wounds were from a knife, and their number marked the desperate struggles he must have made. Besides this, his skull was beaten in by bludgeons, one of which, covered with blood, had been found close by him."

The commander was obliged to try and to

flog some of the worst, *pour encourager les autres*; and he says, soon after:—

"I must here state, that our battalion was made up, in a certain degree, of the most motley and heterogeneous elements. Strolling players, ballad-singers, chimney-sweepers, prize-fighters, the wig-dresser of his late majesty, attorneys' clerks, medical students, painters, engravers, printers, poets,—all variously animated with the love of fame and liberty, or the fear of want, were to be found amongst our ranks."

We cannot be surprised that Dom Pedro, from the very first of their acquaintance, evinced a dislike to his allies; and a suspicion of their aid, even though he could not do without them:—

"He made (says Col. H.) disparaging remarks on the appearance and movements of the untrained soldiers, to such a degree as obliged me to remonstrate with him respectfully on the pernicious tendency such manifestations might have on the minds and conduct of the men. He did not reject these representations; but his reception of them, I am compelled to say, was sullen and dissatisfied. After one of these instances, I was amused by a circumstance which illustrated the versatile disposition of his mind. On the marines being dismissed from drill, he formed a *squad* out of his own suite, placing on the right of them his holy adviser, Padre Marcos, and on the left Doctor Tavares, the poet laureate, with Senhor Freire, &c. To this band of neophytes—for I suppose I must call them by a finer name than 'awkward squad'—he distributed muskets, (to each one, and to all fifteen,) and, proceeding himself to act as fugleman, put them through the manual and platoon exercise. At the termination of this display, he appealed to me for my approval. I could not but perceive the intended derision of the parallel thus implied—the practical satire on the discipline of the men I had brought out to make soldiers

\* His personal character, independently of a devotedness to the principles of humanity, which caused him to feel the utmost horror at the execution of a criminal, is thus sketched by the author:—"Dom Pedro's is one of those characters so disposed to the open manifestation of every passing sentiment which affects the mind, that it offers but little difficulty to its thorough comprehension, by even a careless observer. He possesses, in an eminent degree, some of the most valuable qualities that adorn humanity, clouded, truth obliges me to confess, by some that are but too likely to lessen materially the degree of good he is striving to confer on his country. Frank, open, and manly, possessing, too, a powerful and robust frame of body, and a strength of constitution capable of supporting a vast degree of fatigue and privation, he evinces a natural bias towards dangerous and hazardous enterprises. All these qualities are now in their fullest vigour, as the emperor is but in his thirty-sixth year. His character is particularly marked by a love of truth in all he says, and a scrupulous desire to fulfil all his promises—a matter of no small difficulty in a prince, and especially in one so circumstanced. The strength and steadiness of his judgment are upon the whole questionable, as many events of his past life, as well as the sequel of this Narrative, will, I think, demonstrate. The defective mode of his education will, however, account for much of this. He has never been habituated to reading, and, in consequence, his knowledge of mankind must have been derived only from those who have surrounded him. It would be too trite a subject to point out the almost necessarily erroneous views he must entertain of mankind on some points, and his total ignorance in others, while courtiers were his principal companions and instructors. The absence, too, of a judicious control over his conduct in early youth is too evidently seen in his present deportment. He is subject to sudden impulses generally, and sometimes yields to the most violent ebullitions of temper, under the influence of which he gives prompt utterance to whatever notion sways him at the time, with little delicacy or regard to the feelings of his most attached friends or dependants. Such conduct, in too many cases, produces coolness of zeal in his service, and, in others, entire alienation. It must, however, in justice be added, that his extreme generosity serves in no small degree to lessen the bad effects so mischievous a habit infallibly produces."

of; but I suffered the ludicrous part of the impression to efface the serious."

The emperor had as much reason to love and trust his French allies:—

"At this time, too, 500 Frenchmen arrived at Angra; but the original intention of landing them at Terceira was altered, and they were ordered to St. Michael's to be disciplined. Among them were many old soldiers decorated with the cross of the Legion of Honour, and a still greater number with that of the 'Revolucion des trois jours.' The emperor proceeded on board the transport to inspect them. They received him with shouts of *Vive Dom Pedro! Vive Donna Maria Segunda!* but their cries of *Vive la liberté! Vive la belle France!* were deafening. They then sang in chorus the *Marseillaise* and the *Parisienne*. But all this good humour suddenly changed, when they were informed they were not to disembark. They grew outrageous, and mutinous: and the emperor was glad to get on shore as quickly as possible. He declared, that had as were the English, he preferred them to those unruly Frenchmen; and that he much feared they would be of little use as soldiers."

And what sort of a people were they, to defend, or rather to conquer, whose liberties these adventurers embarked for?—

"It cannot (the Colonel assures us) be too clearly insisted on, that in Portugal, with few exceptions, faction of the worst description, tyranny of the deepest dye, selfish ambition, and mean intrigue, are mingled, as it were, in the very blood of the inhabitants, from the palace to the convent, and are yet farther traceable down to the cottage of the meanest peasant. These are the besetting sins of the Portuguese; these have been the fatal causes of their enfeebled condition for ages past; and these will go on to perpetuate their loss of national independence, unless the course of events should be so ordered by Providence as to open their eyes, through a severe and wholesome discipline, to the mischiefs which narrow principles of individual conduct cannot fail to entail upon them as a community."

On occupying Oporto, the author adds, "the tone of feeling was any thing but enthusiastic on the part of the inhabitants generally. Few of the Absolutists (or *Corcundos*, as they are called) had at this time left the town; and their presence and influence must have had at least some share in producing the absence of those exultations which had been looked forward to so sanguinely."

"From the lower orders, both men and women, some more vociferous, but at the same time more questionable, demonstrations of welcome were extended to us. The jail which contained the prisoners charged with political offences was immediately forced open, and its inmates were set at liberty. The common hangman, who resided for safety within its precincts, encountered his fate through that very circumstance, for he was assassinated at the door while attempting to make his escape, and his body remained on the spot until late that night. Nor did the popular impulse rest here, an attempt being made to force in like manner the prison where the common felons were confined. This was fortunately prevented by the timely arrival of Lieutenant-Colonel Swalbach and his brigade, who speedily restored order in the town."

The holy alliance was now complete—there was no hangman, and only a jealousy of the foreign troops remained to impair the unanimity of the scene. This, however, was enough to paralyse their efforts. Actions were gal-

lantly fought; but no beneficial results ensued. Political intrigues led to chances and changes. Colonel Evans, then out of parliament, agreed to take the military command; but the needful loan through Barings, and after through Goldsmid and Ricardo, having failed, he wisely stayed at home, and is now M.P. for Westminster. General Excelmans was next sought, but this negotiation also failed; Sir J. Milley Doyle, however, went. The actual contractors turned out to be "men of straw;" but still occasional supplies and reinforcements reached Oporto. But the foreign force there was nevertheless reduced to sad destitution, and all the applications of the commander of the English portion of them were urged in vain. To be sure, as they were prone to sell their coats, boots, and other necessities, in order to purchase liquor, it was not very easy to supply all their wants; but still a gross disregard to their comforts, even when wounded, appears to have been manifested. Disgusted with this, and with appointments made over his head, Colonel Hodges finally resigned, and returned to England; having equally distinguished himself by his efforts in the cause he espoused, by his spirit in action, and by his reputable conduct in the difficult positions in which he was placed.

On his accounts of what he witnessed, and did himself, we implicitly rely; on his reports of reports we are often sceptical. We believe, for instance, on imputation against Sir John Campbell, whom we know, to whatever side he may belong, (and his marriage with a Portuguese lady, and rank in the service, are sufficient grounds for his being where he is,) to be a man of as clear a judgment, and as high mind and honour, as any within the dominions of Britain or Portugal, be the other whom he may. The rumours of the cruelties attributed to Dom Miguel may or may not be true; but we always listen with doubt to the assertions of declared and bitter enemies; it is evident that the priests, the agriculturists, and the population, have adhered to him pretty constantly; perhaps the commercial classes have furnished the Portuguese support of Dom Pedro. But we are not partisans of either brother; and shall therefore conclude with three anecdotes—one of an English recruit, one of a native cobler, and the last of our esteemed and gallant friend, Captain Glascock, who has so independently and nobly sustained the British character, and maintained a most difficult neutrality, as the naval commander of our squadron in the Douro.

*The Englishman.*—"A lad of the name of Edwards, not more than seventeen years of age, belonging to the light company of the British battalion, was the first who plunged his bayonet into the chest of one of these horses. Withdrawing it forthwith, he deliberately shot the rider. After the cavalry were repulsed, I perceived that the unfortunate man who had become a victim to this juvenile 'cool hand,' was yet breathing. Young Edwards, coming up at the moment, was proceeding, with further *sang froid*, to take off his boots. I insisted that he should do no such thing until the man was dead. It was not without evident reluctance that he desisted; and afterwards, finding that the man had been stripped in the mean time by some one else, he came to me, crying like a child, and in the urgent familiarity of grief, reproached me with his loss! My assurance of indemnifying him by a pair of new boots on our return to Oporto, though it had some cheering effect, was hardly sufficient to restore his composure; for he declared, 'with one suspicious and one drooping eye,' that he

would rather have that man's boots than he had shot for, than twenty pairs of others!"

*The Oporto Cobler,* "sitting (during a bombardment) under one of the trees in busy prosecution of his calling, a shell burst at an awkward proximity to him, but happily with no worse effect than that of deranging his tools, and covering him all over with sand and dust. Nor was he by any means more frightened than hurt, for he very collectedly put together his traps, before shifting his position to another tree at a little distance, with the observation, 'Aquella bala por certo era para mim! Vamos procurar logar mais seguro.'—(No doubt that is meant for me! Let us find out a safer place)."

*Captain Glascock,* "having occasion to wait on Señor Freire, the minister of war, on this subject, (after one of his men had been killed, and considerable damage done to his rigging,) was received most uncourtously by that personage, who, turning upon his heel, desired the captain would write to him, and make his complaint in an official and formal way. The spirit of the British sailor was roused at the insulting manner shewn towards him, and he is reported to have said,—'Ay, I will write on the next occasion with a vengeance, and despatch my letter to you by an eighteen-pound shot!'"

#### *Bulwer's England and the English.*

[Third notice.]

MR. BULWER'S second volume commences with a dedication to the elder Mr. D'Israeli, and informs us that that eminent author is employed upon a general history of English literature—a piece of most welcome intelligence. Mr. B. then proceeds to investigate the intellectual spirit of the time—takes a view of the critical and periodical press—and examines the writings of Scott, Byron, Southey, Wordsworth, and other eminent writers. As these volumes are not yet published, we shall again content ourselves with quotations in illustration of their character, and proof of their value.

Of the press it is finely observed:—"It is the habit of some persons, more ardent than profound, to lavish indiscriminate praises on the press, and to term its influence the influence of knowledge: it is rather the influence of opinion."

And again:—"The press, by revealing facts, exerts a far more irresistible, though less noisy sway, than by insisting on theories: in the first it is the witness, in the last the counsel."

Of detraction.—"Shakespeare has spoken of detraction as less excusable than theft; but there is a yet nobler fancy among certain uncivilised tribes, viz. that slander is a greater moral offence than even murder itself; for, say they, with an admirable shrewdness of distinction, 'when you take a man's life, you take only what he must, at one time or the other, have lost; but when you take a man's reputation, you take that which he might otherwise have retained for ever: nay, what is yet more important, your offence in the one is bounded and definite. Murder cannot travel beyond the grave—the deed imposes at once a boundary to its own effects; but in slander the tomb itself does not limit the malice of your wrong: your lie may pass onward to posterity, and continue, generation after generation, to blacken the memory of your victim.' The people of the Sandwich Islands murdered Capt. Cook; but they pay his memory the highest honours which their customs acknowledge: they retain his bones (those returned were sup-

posititious), which are considered sacred; and the priest thanks the gods for having sent them so great a man. Are you surprised at this seeming inconsistency? Alas! it is the manner in which we treat the great! We murder them by the weapons of calumny and persecution, and then we declare the relics of our victim to be sacred!"

In treating of literary criticism we find the *Literary Gazette* thus alluded to in a note:—

"The influence of certain booksellers upon certain Reviews, is a cry that has been much raised by Reviews in which those booksellers had no share. The accusation is as old as Voltaire's time. He complains that booksellers in France and Holland guided the tone of the periodical Reviews: with us, at present, however, the abuse is one so easily detected, that I suspect it has been somewhat exaggerated. I know one instance of a celebrated and influential weekly journal, which was accused, by certain of its rivals, of favouring a bookseller who had a share in its property; yet, accident bringing me in contact with that bookseller, I discovered that it was a matter of the most rankling complaint in his mind, that the editor of the journal (who had an equal share himself in the journal), and could not be removed) was so anxious not to deserve the reproach as to be unduly harsh to the books he was accused of unduly favouring: and on looking over the Review, with my curiosity excited to see which party was right, I certainly calculated that a greater proportion of books belonging to the bookseller in question had been severely treated than was consistent with the ratio of praise and censure accorded to the works appertaining by any other publisher. In fact, the moment a journal becomes influential, its annual profits are so considerable, that it would be rarely worth while in any bookseller who may possess a share in it to endanger its sale by a suspicion of dishonesty. The circumstance of his having that share in it is so well known, and the suspicion to which it exposes him so obvious, that I imagine the necessary vigilance of public opinion a sufficient preventive of the influence complained of. The danger to which the public are exposed is more latent; the influence of acquaintance is far greater and more difficult to guard against than that of booksellers."

We can answer for this being both true and just. The following, in discussing the question whether anonymous or acknowledged criticism is best, is equally striking (though, perhaps, we do not go all the way with Mr. Bulwer in his sentiments on this subject):—

"Were a sudden revelation of the mysteries of the craft now to be made, what—oh what would be the rage, the astonishment, of the public! What men of straw in the rostra, pronouncing flats on the immortal writings of the age; what guessers at the difference between a straight line and a curve, deciding upon the highest questions of art; what stop-watch gazers lecturing upon the drama; what disappointed novelists, writhing poets, senseless historians, senseless essayists, wreaking their wrath on a lucky rival; what Damons heaping impartial eulogia on their scribbling Pythias; what presumption, what falsehood, what ignorance, what deceit! what malice in censure, what dishonesty in praise! Such a revelation would be worthy a Quevedo to describe."

We can this week, from obvious causes, bestow but a taste of this work—it is, though brief, apropos; and we must rest upon that single pretension.

## ARTS AND SCIENCES.

LUNAR ECLIPSE OF THE FIRST INSTANT.  
(See *Literary Gazette* of last week.)

At 10<sup>h</sup> 56<sup>m</sup> (mean time) a dulness was observed on the south-east limb of the Moon, indicating the part of the disc at which the eclipse would commence. This dulness increased in intensity till 11<sup>h</sup> 7<sup>m</sup>, when the dark shadow had evidently entered on the disc. The defined edge of the shadow came into contact with the following lunar spots, at the times specified respectively:—

Mare Humorum 11<sup>h</sup> 10<sup>m</sup>—Grimaldus 11<sup>h</sup> 14<sup>m</sup>—Tycho 11<sup>h</sup> 17<sup>m</sup>—Kepler 11<sup>h</sup> 29<sup>m</sup>—Copernicus 11<sup>h</sup> 38<sup>m</sup>—Aristarchus 11<sup>h</sup> 45<sup>m</sup>—Mare Serenitatis 12<sup>h</sup>. The Moon shortly after this period was concealed by clouds for two or three minutes. About the middle of the eclipse the penumbra extended to Eudoxus.

The following spots escaped from the dark shadow, at the times specified respectively:—

Aristarchus 13<sup>h</sup> 57<sup>m</sup>—Grimaldus 13<sup>h</sup> 16<sup>m</sup>—Copernicus 13<sup>h</sup> 21<sup>m</sup>—Tycho 13<sup>h</sup> 49<sup>m</sup>—Mare Crisium 14<sup>h</sup> 4<sup>m</sup>. The dark shadow left the Moon 14<sup>h</sup> 21<sup>m</sup>. The penumbra had disappeared from the south-western limb at 14<sup>h</sup> 28<sup>m</sup>.

Such an uninterrupted observation of an eclipse has not occurred for several years. The night was beautifully clear, and the light of the Moon very brilliant. At the middle of the eclipse, that portion of the lunar disc immersed in the shadow was visible, though not very distinctly; it is difficult to convey an idea of its colour, being rather of a tint of Indian ink, than, as usually described, of a coppery hue. The edges of the disc were brighter than the central parts, and gradually increasing in breadth and degree of luminosity as the shadow approached the uneclipsed limb. Copernicus and Aristarchus were visible before their escape from the dark shadow. The appearance of the Moon, at the time of its greatest obscuration, was exceedingly interesting, with its uneclipsed limb assuming the form of a narrow arch, concave to the horizon. The small stars in Sagittarius, in the neighbourhood of the Moon, were distinctly seen.

The aspect of the heavens subsequent to the eclipse was very beautiful. The Moon, so recently arrayed in a mantle of sackcloth, shone forth with untarnished lustre as she sank towards the western horizon. In the east, Jupiter and Venus were shedding forth a trembling flood of radiance; the glowing twilight of the early dawn was ascending the celestial canopy; and the lark, already at its "watch-tower in the skies," was hailing, with its lively notes, the rising god of day.

Dagford.

J. T. BARKER.

## FINE ARTS.

We do not remember to have experienced a higher treat than at the *conversations* given by Messrs. Moon, Boys, and Graves, of Pall Mall, on Wednesday evening. At half-past eight, their magnificent rooms, brilliantly lighted up, were thrown open to their friends; and nearly 200 of our principal artists and literati attended. The *ensemble* was very imposing: numerous beautiful specimens of the arts were exhibited, including Turner's superb "Views in England," Brockedon's drawings for the "Illustrations of the Passes of the Alps," and Burnet's "Greenwich Pensioners," the engraving of which is already largely subscribed for,—a just testimony to the character of the painting and the popularity of the sub-

ject. Many portfolios of admirable drawings and sketches covered the tables. Mr. Sams, the Egyptian traveller, shewed a beautiful specimen of the fine arts, as they existed in Egypt in the time of the Ptolemies, viz. the portrait of a lady,—remarkable for correct and elegant drawing and expression. Among the company we observed Chantrey, Turner, Stothard, Phillips, Etty, Collins, and other Academicians; and nearly the whole of the engravers of celebrity. Many members of the aristocracy were also there; and the meeting "went off," as the newspapers say, "with prodigious élat."

## ORIGINAL POETRY.

JOHN WHITE AND SUSAN FRY.

JOHN WHITE he was the smartest man  
Of all the New Police,  
Though he had but a pound a week  
To keep him and the peace.

Among his brother officers  
You might have found some bigger;  
But John White, No. 28,  
Was well known by his figure.

The servant-maids, as John went by,  
Stole to their doors to talk,  
And so would be long on the step,  
Though not allowed a walk.

Soon to a cook, one Susan Fry,  
He spoke of faithful love,  
And swore she was, though kitchen-maid,  
All other maids above.

This cook had vowed that none to her  
Cool treatment should impute;  
So, looking at his uniform,  
She smiled upon his suit.

He courted her, and called her queen,—  
While she would oft in sport  
Declare his manners much improved  
Since he had come to court.

But soon, alas! she found him out,  
And his bright prospects marred—  
Though John, like all the New Police,  
Was always on his guard.

One night she called to see Jane Sly,  
The cook to Doctor Drake,  
And there, with Jane and oyster-sauce,  
She found her love at steak!

John kept his eyes fixed on his plate,  
Alarmed at Susan's fright,  
Who cried, "For shame!" and then declared  
Next day her wrongs she'd write.

She sent this touching note to Jane—  
"You'll never see me more;  
For you've split an appy pear,  
And cut me to the core."

And then she wrote to faithless John—  
"You know, sur, I'm yure betters—  
Indeed the postman says I've maid  
Sum progress in my letters."

"I oped for joy, John, wen I chose  
My Lav from *humbel* state—  
For being cook, of coarse I knoo  
Wot broils attend the grate."

"But you've deceived me, so fair well,  
You false and crewel yuth—  
I've found, though you're one of the 'Force,'  
'Tis not the 'Force of Truth.'"

"So I'm determined, O, John Wite!  
To plunge into the river—  
And scorn, as I have lost my heart,  
To be a forlawn liver!"

To Waterloo Bridge straight she went,  
Poor melancholy soul!  
Where, as she was a *belle* for death,  
She gave the usual toll.

Then turning pale at thoughts of White,  
She scaled the bridge's brink,  
And, like a fearless kitchen-maid,  
Thus perished in a sink!

John learnt her fate, and crying cried—  
"Alas! my hopes are o'er—  
Though I have made so much of her,  
I find that she's no more!"

John's still alive; but grown so thin,  
With constant woes and pains,  
That literary servant-maids  
Now call him "*White's Remains!*"

F. B. FRANKLYN.

## DRAMA.

KING'S THEATRE.

UPHELD by the matchless Pasta, *Norma* has improved upon the town. Two or three of its choruses and arias are truly fine; and the acting towards the close most impressive.

*Paganini*.—On the occasions in which he has appeared, such as Laporte's benefit, &c., has surpassed all his former efforts. What pity that such extraordinary powers should be thrown into the background by any circumstances!

COVENT GARDEN.

PORTIONS of the celebrated opera of *Euryanthe* have been given here with fine effect by the German company. On other evenings, the brilliant acting of Malibran has been sufficiently attractive.

HAYMARKET.

*My Wife's Mother*, a light comedy, suggested by the French, and admirably adapted to the English stage by Mr. C. Mathews "*le jeune*," has been produced with complete and deserved success at this theatre. The story, for it is not a plot, is simple. A newly-married and honeymoon-happy pair, Mr. and Mrs. Budd (Vining and Miss Taylor), are rendered jealous and miserable, in the space of twenty-four hours, by the setting-to-right temper of the wife's mother (Mrs. Glover), who comes to visit them and pass her daughter's birth-day. The whole family is filled with confusion and turned topsy-turvy by this managing mamma. Old Foosie (Farren), the husband's resident uncle, is almost turned out of doors. *Widow Fitzosborne* (Honey), Mrs. Budd's friend, is converted into her deadly rival; and the servants are so lessened, that they one and all give warning to quit their hitherto comfortable places. Brindal, as a bachelor (the balance to the widow), has a character of no importance, but he enacts it with much whim and cleverness. The onus, however, lies chiefly on Mrs. Glover and Mr. Farren. The first has a *part* which, like *Paul Pry*, must find so many counterparts in real life, that it cannot fail to be highly popular. Had the name been shorter (than *Quick-fidget*), it would be more so:—a short name is a long passport to popularity. Mrs. Glover's acting is perfect; nobody could do mischief in a purer style—as if unconscious of that exquisite power which upsets a comfort or hurts a feeling at every movement. It will be fatal to the reception of many wives' mothers into the abodes of their loving children. Farren, too, is unique: *Foosie* is not to be put out of his way by any thing; drilled into patience by the late lamented Mrs. F., he drives forth

pleasantries more defensive than argument, and falls asleep (from ancient custom) when scolding becomes intolerably vehement. Farren, in face, and dress, and manner, is inimitable in this personation. Miss Taylor also plays well up to the leaders; fond of her husband, but misled by the established influence of her mother; the transitions are excellently expressed. Vining and Mrs. Honey have less to do; but they do all that opportunity allows them, to render this comedy, as far as it pretends to be, one of the most effective of recent dramas. We were glad to see the house well attended to witness its third representation.

## OLYMPIC.

THE Olympic season closed, after a fairly prosperous experiment, on Saturday; but on Wednesday Miss Shirreff took her benefit at this theatre as *Rosetta in Love in a Village*, and *Clari*, for the first time; both of which she played and sang most sweetly; and we rejoice to say, that her eminent private and public deserts were acknowledged by an overflowing audience. The musical treat was truly English, and of a very gratifying description.

## THE VICTORIA THEATRE, LATE THE COBURG,

(*'Twas called the Circus then, but now the Surrey.*)

OPENED with great *éclat* on Monday, under the management of Messrs. Abbott and Egerton, who have undertaken to offer an English asylum for the encouragement of native dramatic talent in this handsome building. We have always esteemed the house to be the most suitable in the metropolis for dramatic representation. Its size is of good medium, and its form both agreeable and convenient; and now that it is newly and tastefully embellished, the ensemble is altogether such as the admirers of the stage must approve. It was filled with a very fashionable audience, including many noble and distinguished persons. The first novelty, however, was not of an order to continue the attraction. The *Forest of Ardennes*, though excellently acted by Mrs. Keeley, the Misses Horton, Warde, and a Mr. Wood from Norwich, whose *début* was very successful, and others, is but of the common class of melo-drame, devoid of invention, and, consequently, without interest. It can only, therefore, linger through a brief existence, while better things are prepared to supersede it. The after-piece of *Black-eyed Susan* was never played with greater success. Miss Jarman was admirable in the heroine, and Miss Sydney vastly pretty in *Dolly Mayflower*; T. P. Cooke a host; and Egerton, Wood, Ross, Turnour, Mears, &c. most commendable. On Thursday the *Hunchback* varied the scene, and the Victoria flourished under its auspices.

## VARIETIES.

*Methodism in 1749*.—"Methodism is more fashionable than any thing but brag; the women play very deep at both—as deep, it is much suspected, as the matrons of Rome did at the mysteries of the Bona Dea. If gracious Anne was alive, she would make an admirable defendress of the new faith, and build fifty more churches for female proselytes. I must tell you a *bon-mot* that was made the other night at the serenata of *Peace in Europe* by Wall, who is much in fashion, and a kind of Gondomar. Grossatesta, the Modenese minister, a very low fellow, with all the jack-pudding-hood of an Italian, asked, '*Mais qui*

*est-ce qui représente mon maître?*' Wall replied, '*Mais, mon Dieu! l'abbé, ne savez-vous pas que ce n'est pas un opéra bouffon?*' And here is another *bon-mot* of my Lady Townshend: we were talking of the Methodists; somebody said, 'Pray, madam, is it true that Whitfield has recanted?' 'No, sir, he has only *canted*.'—*Walpole's Memoirs*.

*Alarm of Earthquake*.—"A parson, who came into White's the morning of earthquake the first, and heard bets laid on whether it was an earthquake or the blowing-up of powder-mills, went away exceedingly scandalised, and said, 'I protest, they are such an impious set of people, that I believe if the last trumpet was to sound, they would bet puppet-show against judgment.'—*Ibid*.

*Tutors*.—"There is another animal still more absurd than Florentine men or English boys; and that is, travelling governors, who are mischievous into the bargain, and whose pride is always hurt, because they are sure of its never being indulged. They will not learn the world, because they are sent to teach it; and as they come forth more ignorant of it than their pupils, take care to return with more prejudices, and as much care to instil all theirs into their pupils."—*Ibid*.

*A Fact touching the March of Intellect*.—"At a meeting of a certain set of commissioners lately at Brighton, one of them objecting to a proposed exception to their regulations respecting chimneys, said, 'I thought our laws were like the Persian maids—never to be broken?' 'Medes and Persians, you mean,' observed a Biblical critic. 'Well,' rejoined the first, 'maids of the Persians, if you like; where's the difference?'

*The Opening of Hungerford Market* was a gay and animating scene. The ascent of a balloon with three passengers, a regatta, a dinner, fireworks, and a ball, marked the occasion. These were all most acceptable to the multitude, who enjoyed them; but it is still more gratifying to anticipate the good and useful effects from establishing this market, where it was so much wanted for the supply of the west end of London. We trust it will tend to furnish excellent articles, and to lower prices—often most exorbitant in this district.

*Keeping up*.—"Were you not horribly frightened?" said a friend to one of the gentlemen who ascended with Mr. Graham on Tuesday last from Hungerford Market. "No," answered the aeronaut; "our spirits kept us up." "Well," replied the inquirer, "I have pretty good spirits, too; but if I had been in the car, I should have trusted entirely to the balloon to keep me up!"

*Zoological Society*.—"At the usual monthly meeting on Thursday, it was stated that 82,507 persons visited the Society's gardens and museum in May and June.

## LITERARY NOVELTIES.

Exposition of the False Medium, and Barriers, excluding Men of Genius from the Public.

Taxation of the British Empire; its unequal Pressure on the Middle Ranks of Society; and the necessity for a Revision of the Fiscal and Commercial Policy of the Country, by R. M. Martin.

Illustrations of the Botany and other branches of the Natural History of the Himalayan Mountains, and of the Flora of Cashmere, by J. F. Royle, Esq. F.L.S., &c.

Sketches of the Domestic Manners, and Social Condition of the White, Coloured, and Negro Population of the West Indies, by Mrs. Carmichael.

Memoir of the Rev. John Adair, late Missionary at Calcutta.

Messrs. Ackermann and Co. announce Two Series of Coloured Views of Niagara and Quebec, from Drawings taken on the spot, by Lieut.-Col. Cockburn.

Songs of Switzerland, &c., from the pen of Mr. Henry Brandreth.

A new and splendid Annual, to be called the Oriental Annual, from Original Drawings by W. Daniell, Esq. R.S.A., is announced; the Literary Department by the Rev. H. Caunter, B.D.

## LIST OF NEW BOOKS.

The Dublin Journal of Medical and Chemical Science, No. IX. 8vo. 3s. 6d. sewed.—The Analysis and Medical Account of the Tepid Springs of Buxton, by Sir Charles Scudamore, 8vo. 2s. sewed.—Professor Stuart on the Romans, edited by Drs. J. P. Smith and E. Henderson, 8vo. 14s. cloth.—Mansart's Dialogues sur les Beaux Arts, 12mo. 2s. cloth.—Mansart du Sublime et des Tropes, 12mo. 2s. cloth.—Elements of English Grammar, 18mo. 2s. 6d. cloth.—Montagu's Thoughts of Divines and Philosophers, 32mo. 2s. silk.—Ritson's Ancient Popular Poetry, crown 8vo. 7s. 6d. cloth.—Tales of Real Life, 18mo. 2s. 1/2.—Two Expeditions into the Interior of Southern Australia, by Capt. C. Sturt, 2 vols. 8vo. 28s. bds.—Sir Guy de Lussignan, by Miss Knight, 2 vols. post 8vo. 21s. bds.—Some Account of the English Stage from the Restoration in 1660 to 1830, 10 vols. 8vo. 5l. 10s. cloth.—Main's Illustrations of Vegetable Physiology, 12mo. 3s. cloth.—The Condition of the Negro Slave contrasted with the Infant Pauper Slave, with Cuts by R. Cruikshank, 18mo. 2s. 6d. sewed.—Carlisle's Letters on the Holy Scriptures, 2 vols. 12mo. 12s. bds.—Rev. A. Murphy on the Elementary Principles of the Theories of Electricity, Heat, and Molecular Action, Part I. (on Electricity), 8vo. 7s. 6d. bds.—The Dream, and other Poems, by Mrs. Lennox Conyngham, 8vo. 10s. 6d. bds.—Rhymed Plea for Tolerance, 18mo. 4s. bds.—The Homeopathic Medical Doctrine, or Organon of the Healing Art, translated from the German, by C. H. Devrient and S. Stratton, 8vo. 10s. 6d. bds.—Tales of the Tombs, a Series of Anecdotes, post 8vo. 6s. bds.

## METEOROLOGICAL JOURNAL, 1833.

Juns.	Thermometer.	Barometer.
Thursday 27	From 43 to 66	29.23 to 29.74
Friday 28	41 .. 71	29.63 .. 29.86
Saturday 29	39 .. 73	29.86 Stationary
Sunday 30	39 .. 71	29.84 .. 29.75
July		
Monday 1	39 .. 67	29.70 .. 29.63
Tuesday 2	41 .. 70	29.65 .. 29.72
Wednesday 3	44 .. 71	29.97 .. 30.02

Wind variable, S.W. prevailing. Except the 29th ult., the 2d and 3d inst. generally cloudy, with frequent and at times heavy showers; a peal of thunder in the afternoon of the 1st inst. Rain fallen, 1 of an inch.

Edmonton. CHARLES HENRY ADAMS.  
Latitude ..... 51° 37' 32" N.  
Longitude .... 0 3 51 W. of Greenwich.

## TO CORRESPONDENTS.

\* \* \* The importance of placing before our readers a view of the state of science in England at the present day, has induced us to occupy much of our *Gazette* in a way which, though we trust it will be generally gratifying, has of necessity led to many postponements under our usual heads. Distribution of prizes at the King's College, Review of Captain Owen's Voyage, &c. &c. are among the number; and other matters, it will be seen, have been obliged just to vary this sheet.

We are obliged to B.; but do not think the subject quite suitable for poetical illustration.

*The Italian Language*.—A Correspondent desires us to hint the expediency of publishing a good Italian Dictionary, with the true Tuscan pronunciation; as has been done in English, French, and other languages. Graglia or Baretti done in this manner, would, we think, be in popular request.

We are obliged to B.; but the matters are hardly worth notice.

R. L. will find a packet at our Office.  
A "Constant Reader" is informed, that the Almanac he refers to, is *wrong* in the time assigned for the approaching solar eclipse. A slight difference may exist, from different tables being employed in the computation, but this will not arise to many seconds. We should scarcely think any of our readers would be misled relative to the day of the eclipse; lest, however, this should be the case, we state, for the information of those not acquainted with the nature of astronomical time, that the expected solar eclipse will commence about an hour after sunrise, on the morning of Wednesday, the 17th of this month.

S. T. is informed that the Almanacs for 1833 are right in the particular to which he alludes. As our limits will not permit us to enter on an explanation, we refer him to Vince's or Ferguson's Astronomy; in either of which he will find the fullest information on the subject. Hutton's Mathematical Dictionary, article, *Dominical letter*, is also very clear on the point in question.

Mr. Osborne's concert-tickets, arrived too late, and also the invitation to the Gresham Commemoration.

We have to regret that Friday's business prevented us from visiting Mr. Rossi's exhibition of Sculpture; of the variety and talent of which a very favourable report has been made to us.

The notices of the British Museum reached us only on Friday morning; to be considered.

## ADVERTISEMENT,

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## BRITISH INSTITUTION,

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The Gallery, with a Selection of Pictures, from the Works of Sir Joshua Reynolds, Mr. West, and Sir Thomas Lawrence, the last three Presidents of the Royal Academy, is open daily, from Ten in the Morning till Six in the Evening.

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## WEST OF SCOTLAND EXHIBITION

of the FINE ARTS.—The Sixth Annual Exhibition of the Works of Living British Artists, under the Patronage of the Glasgow Dilettanti Society, will open this Season on the 9th August.

Works of Art intended for Exhibition will be received from the 10th to the 31st July.

WALTER BUCHANAN, Secretary.

Exhibition Rooms, Dilettanti Buildings, 51, Buchanan Street, Glasgow, April 6, 1853.

**Note.**—The Works of Art which the Directors hope to be favoured with from London may be sent to Messrs. S. Reynolds and Co. Dundee Wharf, Lower Hermitage, on or before the 30th July, by whom they will be forwarded (carriage free) to Glasgow.

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## INTERESTING COLLECTION of

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## TO ADVERTISERS.—Edinburgh Review.

Advertisements for insertion in the Advertising Sheet No. CXVI., are requested to be sent to Longman and Co., 1, Paternoster Row, by Tuesday, July 13, and Prospectuses, Bills, &c. to be stitched in the Number, a week later.

## BOOKS PUBLISHED THIS DAY.

## THE GENTLEMAN'S MAGAZINE,

published on 1st of July, contains a very curious and humorous Account of the Sports of the Bear-Garden, temp. Ch. I.—Visit to Antwerp at the Capitulation—Essay on Norman Architecture—On the Early English Drama—On the Arrangement of County Histories—History of the Greek Church, &c.—Original Correspondence of J. C. Walker, Esq. &c. &c.; with Reviews of Twenty-five New Works, Literary Intelligence, News and Obituaries, containing Memoirs of Lord Gambier, General Sir G. Airey, General Sir C. Fabre, Rev. Rowland Hill, Dr. Hainington, W. Morgan, Esq. F.R.S., and several other distinguished Characters recently deceased. Price 3d.

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List of the principal new Works published on the Continent and in America for the last Three Months.

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